



Express Combo Trailer
Express Water
Distribution Trailer
Express Generator Trailer

Operator's & Parts Manual



4-1-15 14-04R1

Printed In The USA — Specifications & Design Subject To Change Without Notice!



Warranty Information

This equipment was carefully designed and manufactured to give you dependable service. To insure efficient operation of this equipment, please read this operator's manual carefully. Check each item and acquaint yourself with the adjustments required to maintain optimum performance and operation. **Remember, this equipment's performance depends on how you operate and care for it!**

At the end of each season, thoroughly clean and inspect your equipment. Preventive maintenance saves time and pays dividends. Your nearest Wylie Spray Center has original equipment parts which assure proper fit and best performance. Record your equipment's model and serial numbers and the date you purchased this equipment in the space below. Have this information available when you order parts or attachments.

Model Number: _____

Serial Number: _____

Date Purchased: _____

Limited Warranty

This is a limited warranty. It covers products manufactured by WYLIE Mfg. Co. The Warrantor is **WYLIE Mfg. Co., 702 E. 40th St., Lubbock, TX 79404 USA**. The duration of the warranty for WYLIE manufactured equipment and products (excluding polyethylene tanks) is for **one year from date of delivery to the carrier**. The Warrantor warrants to the Buyer that the product(s) sold hereunder are free from defects to material and workmanship, under normal use and service, in the hands of the original buyer.

If goods are defective, the defective goods will be replaced with identical goods. If identical goods are not available, the Buyer may elect to receive a refund of the purchase price for the defective goods, or the Buyer may order similar goods. **The damage for defective goods shall not exceed the purchase price of the defective goods. No allowance shall be made for labor or expense or repairing goods without prior approval in writing by the Warrantor.** The Buyer's remedy under this warranty does not include incidental or consequential damages.

For products not manufactured by the Warrantor, the Warrantor warrants these products to the extent of the warranties of their respective manufactures. **There are no warranties which extend beyond this limited warranty, including the implied warranty of merchantability.** Dealers or representatives shall not make any representation in regard to particular goods except as authorized by the Warrantor through a written warranty accompanying those particular goods.

Disclaimer of Warranty

WYLIE Mfg. Co., and its divisions, "Wylie Spray Centers," in each location, requires as a condition of sale and coverage by its LIMITED WARRANTY that all equipment sold by it be used in accordance with the instructions and specifications of the Warrantor. This requirement is in addition to the LIMITED WARRANTY.

Polyethylene and fiberglass tanks – These tanks are warranted for the storage and transport of water, herbicide solutions (on farm), liquid fertilizer and liquid feed. Such tanks should not be used for the storage of any bulk herbicide (undiluted). Any such use will render this warranty void.

In addition, the Warrantor makes no warranty with regard to bulkhead tank fittings used in connection with tanks containing bulk herbicides and the use of any such fittings sold by the Warrantor or any WYLIE dealer in connection with tanks containing bulk herbicides is improper.

Chemical Incompatibility – The Warrantor does not make any recommendations or warranties regarding chemical compatibility. WYLIE shall not be liable for any damages due to chemical incompatibility, and any Buyer or user should rely solely on written information furnished by the chemical manufacturer regarding chemical compatibility.

No employee of WYLIE Mfg. Co., or its representatives, agents or dealers, is authorized to vary the terms of this limited warranty.



Wylie Manufacturing Company
 702 E. 40th St.
 Lubbock, TX 79404
 Ph. 888-788-7753

Express Combo Trailer, Water Distribution Trailer, Generator Trailer

| | | |
|-------------------------|--|-----|
| Date of Purchase | | |
| Model Number | Type of Trailer: <input type="checkbox"/> Combo Trailer <input type="checkbox"/> Water Distribution Trailer <input type="checkbox"/> Generator Trailer | |
| Tank Serial Number | | |
| Trailer Serial Number | | |
| Generator Serial Number | | |
| Wylie Invoice Number | | |
| Owner's Name | | |
| Address | | |
| City | State | Zip |
| Phone | | |
| Email | | |
| Dealer | | |

 Owner's Signature

Must be returned within 10 days to validate the warranty.

-- Or Register Online --
 Go to: www.wyliesprayers.com



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Be alert when you see the above symbol in the manual. It warns of a hazard which might lead to injury. It means: *Attention! Become alert! Your safety is Involved!*

Three (3) words (Danger, Warning, and Caution) are associated with this symbol.

DANGER – Indicates a hazardous situation, which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

WARNING – Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION – Indicates a hazardous situation, which, if not avoided, may result in minor or moderate injury.

NOTICE – Indicates information considered important, but not hazard-related (e.g., messages relating to property damage).

SAFETY INSTRUCTIONS - Indicates a type of safety sign where specific safety-related instructions or procedures are described.

Before Use



Do not operate trailer until this manual has been read and understood!

- Thoroughly read and understand all instructions before operating this trailer. If you have questions, please contact **Wylie Manufacturing, 702 E. 40th St., Lubbock, TX 79404, (888) 788-7753**. You can also contact your nearest **Wylie Spray Center**.
- Make sure that the trailer is properly attached to the tow vehicle, including lights, safety chains, hitch and breakaway brake cable.
- Check lug bolts for tightness and tires for wear.
- Adjust hitch height as needed to assure that trailer is level when fully loaded.
- Read and understand the generator manufacturer owner's manual for instructions to safely operate the generator and/or light tower.

During Use



- Do not allow anyone to ride on trailer during transport. Falling can cause injury or death.
- Reduce speed when crossing uneven or rough terrain.
- Always turn off tow vehicle engine before making adjustments or repairs to an attached trailer.



After Use



- Inspect trailer for wear or damage.
- Ensure that all fasteners and fittings are tight.
- Drain water from tanks and lines to prevent freezing if unit is not being used.
- Carry out maintenance and/or lubrication procedures as outlined in this manual.

Always



- Keep hands, feet and clothing away from moving parts.
- Hammer grounding rod into the soil when generator is running.
- Assure that the hitch is attached to the proper size ball.
- Attach the safety chains and breakaway brake cable to the tow vehicle.
- Plug the lights into the tow vehicle.
- Be aware that all the components of this non-certified trailer are rated for potable water.

Operator's Instructions



- When possible, avoid operating the tow vehicle near ditches, embankments and holes.
- Reduce speed when turning, crossing slopes and on rough, slick or muddy surfaces.
- Do not permit others to ride.
- Operate tow vehicle smoothly – no jerky turns, starts and stops.
- Hitch only to the hitch points recommended by the tow vehicle manufacturer.
- When tow vehicle is idle, engage brakes and park lock securely.
- Tighten lug bolts before transporting the first time and maintain proper torque.
- Check lights and wiring daily. Service and replace to maintain proper operation.
- Do not store or transport any petroleum based or flammable liquid in the polyethylene tank.

Wylie Manufacturing, 702 E. 40th St., Lubbock, TX 79404

Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Wylie Manufacturing.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Wylie Manufacturing.

To contact NHTSA you may either call the Auto Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to <http://www.safercar.gov>; or write to:

**NHTSA
U. S. Department of Transportation
12000 New Jersey SE
Washington, DC 20590**

You can also obtain other information about motor vehicle safety from the <http://www.safercar.gov>.



Safety Decals & Placement Express Combo Trailer



⚠ DANGER

Turn the pump and heater breakers OFF before servicing any plumbing. Failure to do so could cause electrical shock, injury or death. V9060



**Decal #V9060
(inside)**

Red & White Reflective Tape

Decal #TMP-3M-980-02

SAFETY CHECKLIST

Do not operate this trailer without checking the following list.

- ✓ Coupler and ball must be same size.
- ✓ Coupler must be locked.
- ✓ Safety chains must be crossed beneath hitch and attached to truck.
- ✓ Breakaway brake cable must be attached to truck.
- ✓ Trailer lighting must be operating properly.
- ✓ Jack must be retracted.
- ✓ Wheel lug bolts must be properly tightened.
- ✓ Brakes must be properly adjusted.

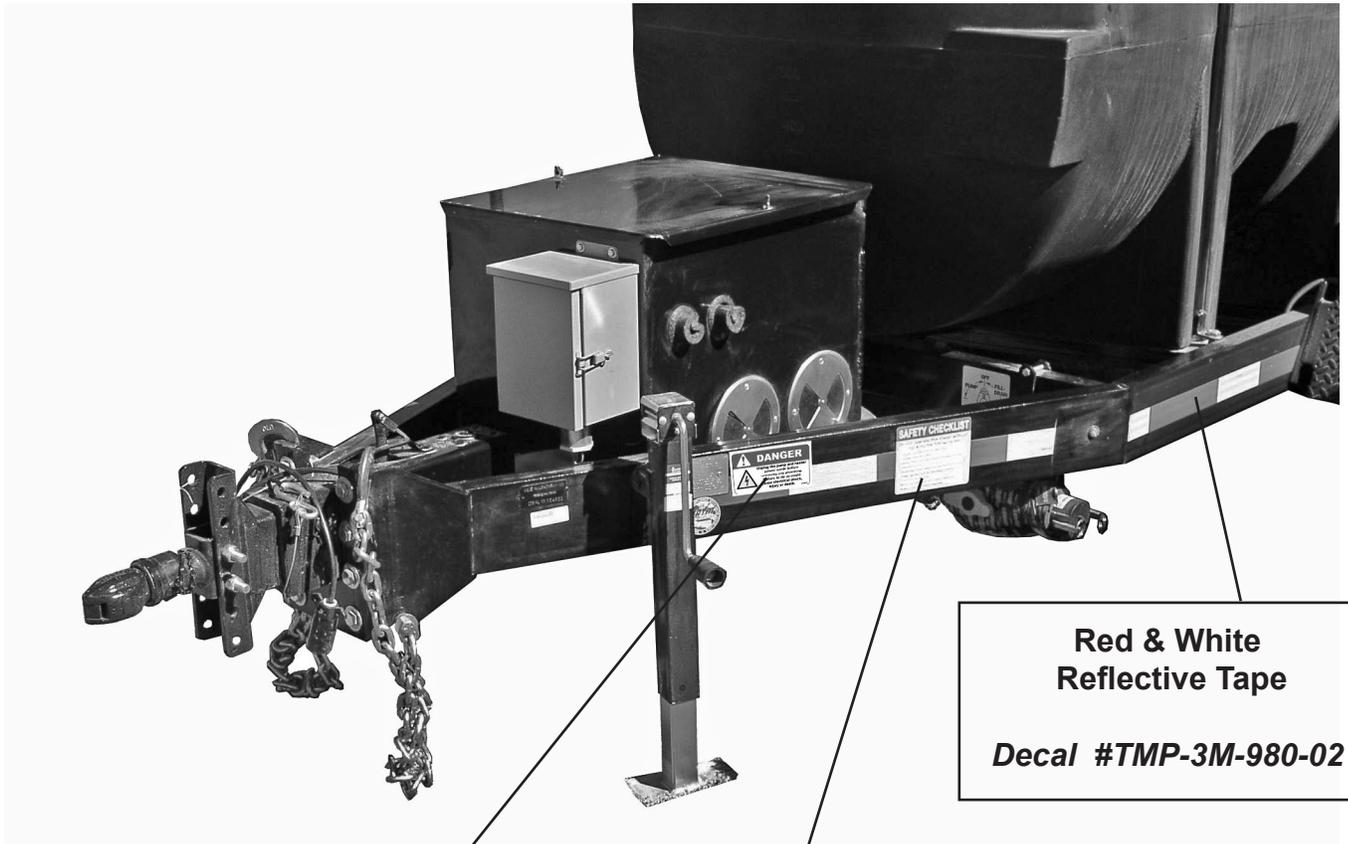
V9029

Decal #V9029

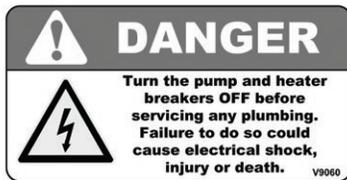
Contact us at mail@wyliesprayers.com or 888-788-7753 to order safety decal or manual replacements.

Safety Decals & Placement

Express Water Distribution Trailer



Red & White Reflective Tape
Decal #TMP-3M-980-02



Decal #V9060



Decal #V9029

Contact us at mail@wyliesprayers.com or 888-788-7753 to order safety decal or manual replacements.



Safety Decals & Placement Express Generator Trailer



! DANGER

⚡

Unplug the pump and heater power cords before servicing any plumbing. Failure to do so could cause electrical shock, injury or death.

V9060

Decal #V9060

Red & White Reflective Tape

Decal #TMP-3M-980-02

SAFETY CHECKLIST

Do not operate this trailer without checking the following list.

- ✓ Coupler and ball must be same size.
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V9029

Decal #V9029

Contact us at mail@wyliesprayers.com or 888-788-7753 to order safety decal or manual replacements.



500 Gal. Express Combo Trailer

Introduction

The Wylie Express Combo Trailers are the result of years of testing and field proven experience. They are built of the finest materials and expert workmanship to provide you with years of reliable service. The Express Combo Trailer is equipped with a 500 gallon polyethylene tank, a pressurized water distribution system, and a 13.5 kW Allmand generator with 25' LED light tower. An optional factory installed freeze protection kit is available. The Express Combo Trailer is a DOT approved trailer that come standard with lights, surge brakes and heavy duty walkway fenders.

The Wylie Express Combo Trailers are designed to supply water, power and light to RV's and mobile offices at oil field or construction sites.

This manual explains how to safely and properly operate and maintain your Express Combo Trailer. A separate manual is included with operating instructions for the Allmand generator. Thoroughly read and understand the contents of this manual before operating your trailer. If you have questions or do not understand particular items, contact your nearest Wylie Spray Center or call Wylie Manufacturing at (888) 788-7753. Please keep this manual handy to answer questions you may have as they arise.

Pay Particular Attention To All Safety Suggestions – Their purpose is to assure safe operation of the trailer and prevent injury or damage to yourself or the unit.



Inspection & Setup - Express Combo Trailer

Express Combo Trailer

Your Express Combo Trailer is delivered ready for operation. However, it is suggested that you check lug nuts and other fasteners for proper torque. Check the motor to assure that it has the proper oil level (see the motor operator's manual for details). Make a visual inspection to assure that nothing was damaged in shipping. Report any problems to your dealer or to Wylie Manufacturing.

The owner's manual should be stored in the manual storage sleeve located inside the engine compartment.



Figure A1
Manual Storage Sleeve

Attaching Trailer To Truck



WARNING

The Combo Trailer should be pulled by a ¾ ton or larger truck. Pulling with a smaller truck could cause loss of control and serious injury or death.



WARNING

The ball and hitch must be the same size. Attaching a 2 5/16" hitch to a 2" ball could allow the trailer to become unhitched during transport. Serious bodily injury could follow.

The Wylie Express Combo trailer requires a 2 5/16" ball. Make sure that the ball and hitch are the same size.

Remove the lock pin from the hitch and slide the lock collar back until the hitch opens. Lower the hitch onto the ball. Close the hitch. The spring loaded lock collar will slide forward into place. Insert and fasten the lock pin in place.

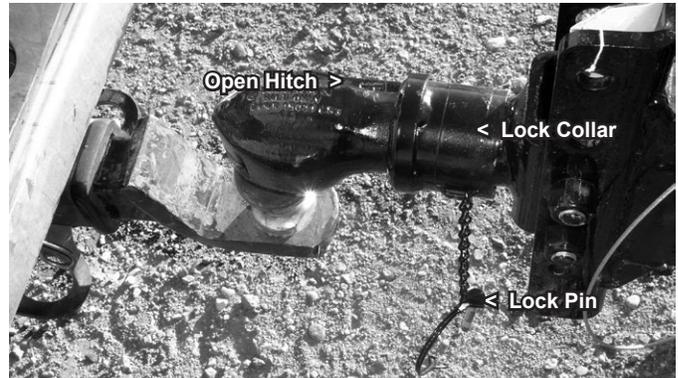


Figure A2
Hitch in Open Position

Attach the safety chains to the eyelets. **DOT regulations require that the safety chains cross as they are attached.**

The surge brake system is equipped with an emergency cable that activates the brake system if the trailer becomes unhitched during transport. The emergency cable should be clipped to the tow vehicle.

Plug the light cable into the truck light socket. Check the lights to make sure that the clearance, turn, brake and tail lights are working properly.

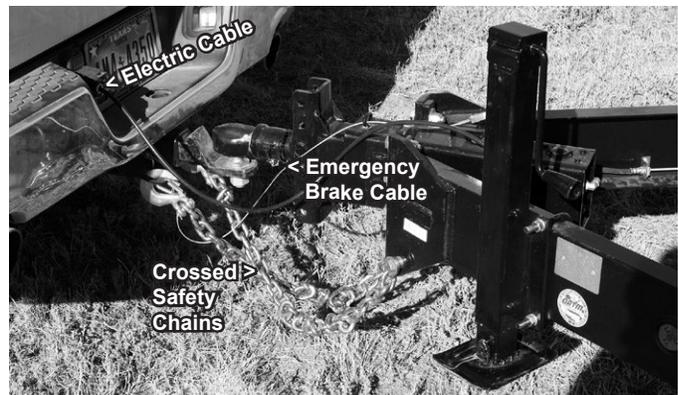


Figure A3
Connections to Truck

The Combo Trailer is equipped with a drop-leg jack. Once the trailer is attached to the truck, rotate the jack handle to raise the jack pad to the highest point. Remove the lock pin and raise the drop-leg to the highest setting and insert the lock pin. (See Fig. A4)



Operation - Express Combo Trailer

The Express Combo trailer is designed to provide water, power and light to portable offices, RV's, or work trailers at temporary job sites. All the fluid components of this non-certified trailer are rated for potable water.

Filling the Water Tank

The 500 gallon water tank can be filled through the fillwell or the quick-fill fitting. To fill through the fillwell, remove the tank lid by rotating counterclockwise and insert the customer supplied fill hose. Make sure the hose is clean and free of any foreign matter. The hose end should stay above the water level.



Figure A9
Filling Tank Through Fillwell

The water tank is equipped with a "bottom load" three way valve. This valve allows flow to either PUMP or FILL/ DRAIN with a center OFF position which closes the valve. The valve and hose may be wrapped with freeze protection insulation and heat cord. See more information on this system on page 13.

To fill the tank through the quick-fill valve, place tank valve to OFF position before removing quick-fill cap. Remove quick-fill Cap, attach the fill line 2" coupler and move valve to FILL-DRAIN position for filling.

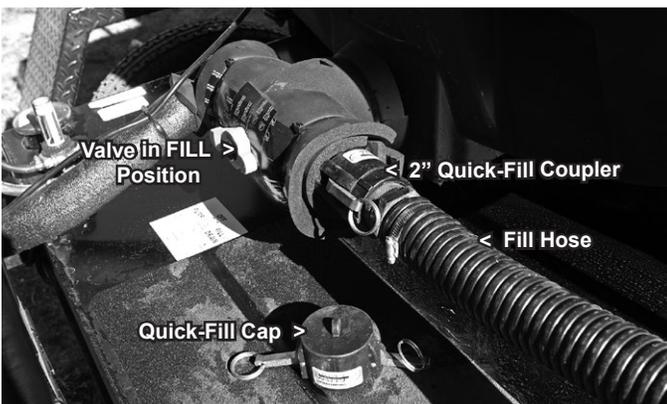


Figure A10
Filling Tank Through Quick-Fill Fitting

If the tank is being filled from a municipal water supply, it is recommended that an optional anti-siphon fill kit (W1440FILL) be mounted on the fender.



Figure A11
Optional Anti-Siphon Fill

When tank is full, rotate 3-way valve to the OFF position before disconnecting the fill hose from the quick-fill valve. Replace the cap. Rotate the 3-way valve to the PUMP position.

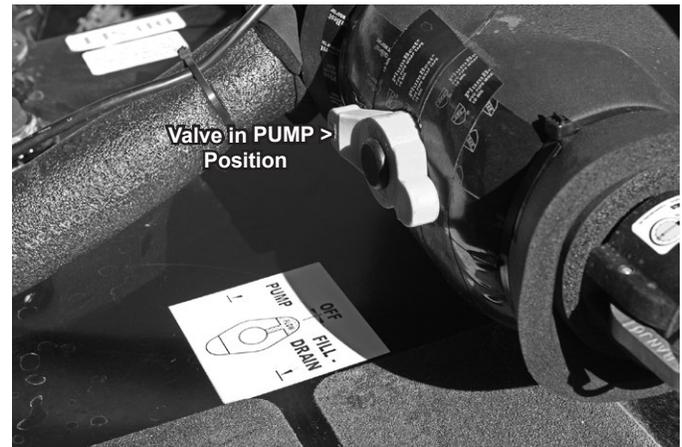


Figure A12
3-Way Valve in PUMP Position

Connection to the Water System

The water pump and pressure tank are located in the engine compartment. If the trailer is equipped with the freeze protection kit, the water pump and pressure tank are inside an insulated metal box. Unscrew the wing nuts and remove the top of the box. In warm weather the top should be removed for pump cooling. The top can be stowed between the insulated box and the engine compartment cover.

Operation - Express Combo Trailer, cont'd.

Route the distribution hoses through the slot on the front of the generator housing and through the insulated holes (if equipped) in the front of the pump box. Connect distribution hose fittings to the two output hoses from the pump.

The distribution hoses may need freeze protection which is not included in the freeze protection kit.

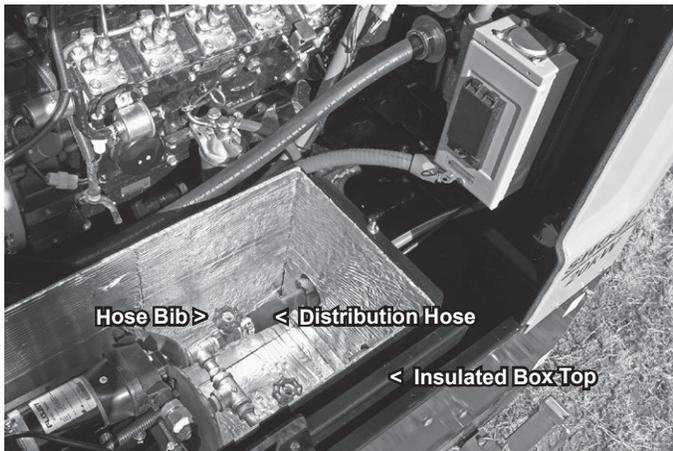


Figure A13
Distribution Hose Connection

Water System Electrical Connections

The Allmand Generator Operator's Manual should be read and understood.

The Wylie Express Combo trailer has additional circuits specific to the water supply and freeze protection system. There are two dual GFCI outlet boxes mounted above the pump box in the generator cabinet. They are protected by two circuit breakers, one for each of the dual outlets. The 2 dual outlets provide power for the water pump (1½ Amps), two heat cords (3 Amps total) and the tank heater (12½ Amps). These circuit breakers are protected by the Main Circuit breaker (90 Amps) in the front generator control panel.

NOTICE

This main circuit breaker on the front generator console should be turned OFF before shutting down the diesel engine/generator. Failure to turn off this circuit breaker (and the lights) can damage the generator circuit and is not covered by warranty.

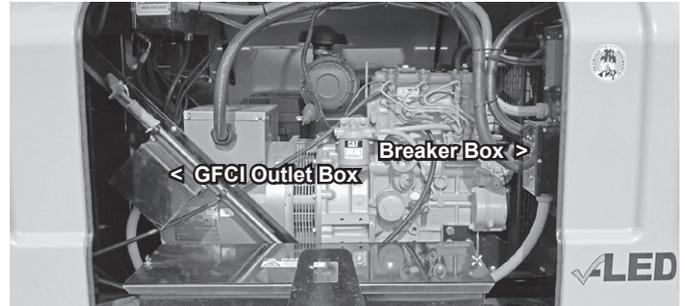


Figure A14
Electrical Connections

Water System Operation

With Water Tank valve positioned to PUMP and the two hose bibs in the pump box turned off, plug in the water pump cord to one of the free outlets in the dual GFCI outlet box above the pump box inside the generator cabinet. (Do not use either of the dual outlets on the plug-in "ThermoCube" socket receptacle which is solely used for the freeze protection circuits). There is no "Off/On" switch, the water system uses a demand pump that cycles on and off according to water pressure; ON at 25 psi, OFF at 45 psi.

The generator must be running to provide power to the water pump. Refer to the Allmand generator owner's manual for operating instructions of the generator.

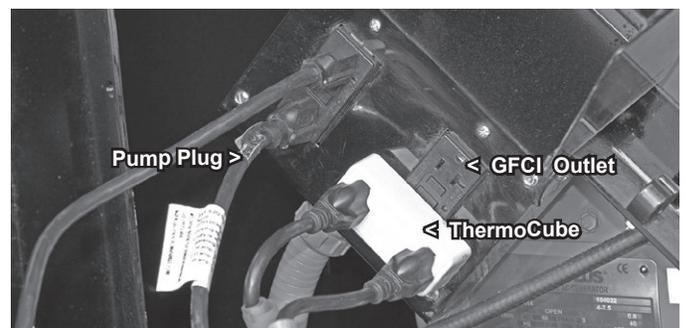


Figure A15
Pump Electrical Connections

⚠ DANGER ⚠

Turn the pump and heater breakers OFF or unplug the pump and heaters before servicing any plumbing. Failure to do so could cause electrical shock, injury or death.



Operation - Express Combo Trailer, cont'd.

The water supply system includes a pressure tank which provides steady water flow and reduced pump cycling. The tank is pressurized (air) at the factory to 25 psi. The pressure can be checked in the field using a standard tire pressure gauge. A protective cap covers the air valve on the rear of the pressure tank. Check the air pressure when the tank is empty.



Figure A16
Pressure Tank Air Valve

With the pump running, open the gate valves on the output hose bibs. Allow several minutes for the tank to fill and to purge air from the distribution hoses.

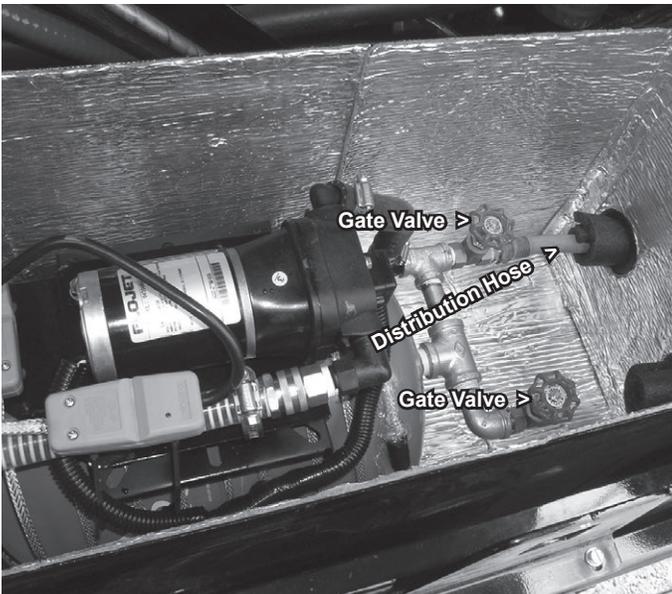


Figure A17
Water Pump Connections

Possible Problems

1. If the pump is not operating, the system may be pressurized and the pump's internal pressure switch is activated. The pump will resume operation when sufficient water is drawn from the system to lower the pressure in the tank.
2. The electrical GFCI outlet into which the pump is plugged can trip. Push the button in the middle of the outlet to reset.
3. There are also two circuit breakers which protect the two electrical outlets which may need to be reset. These circuit breakers are located on the back of the main panel in the engine compartment.

NOTICE

The ThermoCube is a thermostatically controlled electrical outlet. Only the heat cords should be plugged into the ThermoCube.

4. If the pump is mistakenly plugged into the ThermoCube (see below), the internal thermostat will shut off the outlets in temperatures above 45°F. The pump should only be plugged into the GFCI electrical outlets.
5. There is a line strainer in the garden hose adapter just upstream of the pump. If the filter is clogged, flow will be diminished or shut off completely. Turn the main tank valve off and unplug the pump before loosening this garden hose adapter.

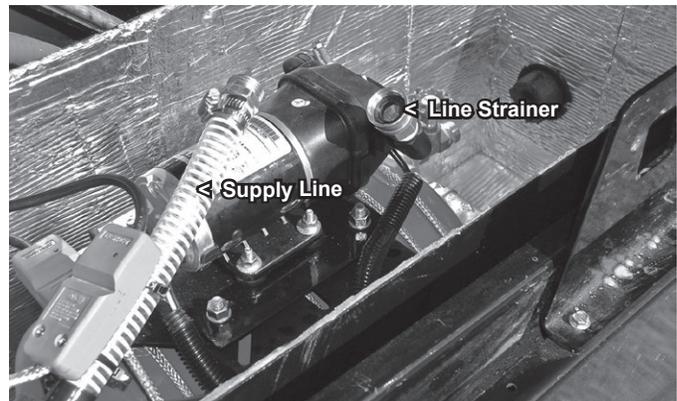


Figure A18
Line Strainer



Operation - Express Combo Trailer, cont'd.

Optional Freeze Protection System

Your Express Combo Trailer may have been equipped with an optional factory installed freeze protection system. This system utilizes a variety of components to protect the water system on the Express Combo Trailer.

Heat Cords:

There are two heat cords that protect the pump supply line and the water tank and components in the pump box. These two heat cords should plug into the ThermoCube which in turn plugs into the GFCI electrical receptacle inside the engine compartment. The ThermoCube has a thermostatically controlled switch which turns on at 35°F and goes off at 45°F. One heat cord wraps around the supply line while the other wraps around the pressure tank components. They are internally self-regulating and will supply heat according to the temperature in the components they protect. In warmer weather, these heat cords should be unplugged.

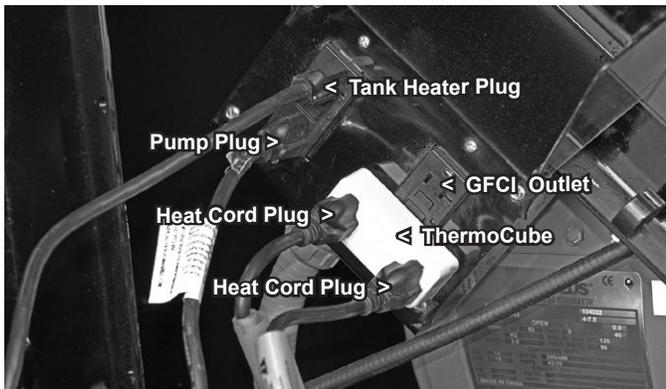


Figure A19
Heat Cord Connections



Heater cords carry 110 VAC. Unplug cords if cut or damaged. Failure to do so could cause electrical shock and injury.

These heat cords conduct 110 VAC and should be handled with caution. They are shielded with an external, braided wire which acts as a physical shield and are also safety grounded. Should the heat cord be cut or damaged, the cord should be unplugged from the ThermoCube and replaced. Call the factory for replacement parts.

Tank Heater:

There is a 110 VAC, 1500 W, thermostatically controlled tank heater mounted in the water tank. The internal thermostat turns on at 38° F and off at 45° F. The tank heater power cord reaches from the tank forward into the generator cabinet and should be plugged into one of the spare outlets in the dual GFCI outlet above the pump box. It should not be plugged into the ThermoCube.

This heater is mounted in one of the tank bulkheads slightly above and to the side of the main tank water valve. In cold weather the water level should not be allowed to fall below the height of the tank heater.

The tank heater cord should be unplugged in non-freezing weather.

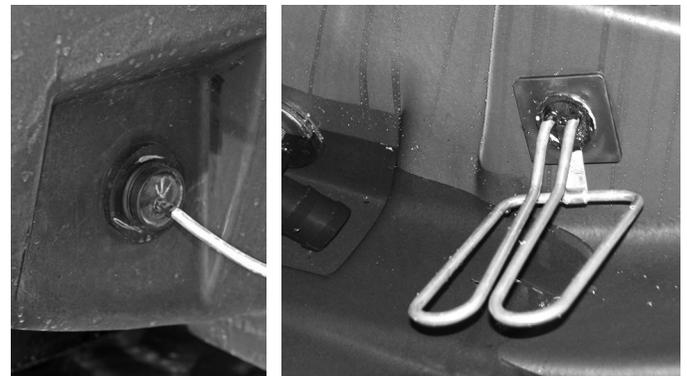


Figure A20
Tank Heater
Outside Inside

Supply Line Insulation:

Foam wrap tubing and foam tees surround the supply line, 3-way valve and heat cord. These connections should remain intact unless necessary for repairs, etc. Care must be taken when reassembling that the cord and foam components are placed in their original locations to assure proper freeze protection.

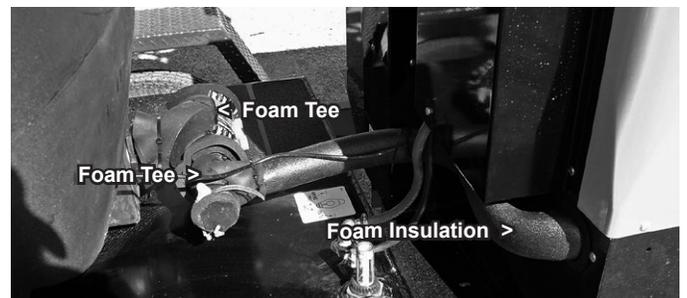


Figure A21
Foam Insulation



Operation - Express Combo Trailer, cont'd.

Water System Drainage:

The supply line leading from the water tank to the pump is heated in cold weather when the generator is running. During transport or periods of inactivity, it may need to be protected. Running the generator during transport is a simple method of protecting the tank and supply lines. If the generator is not available or if the unit will not operate for an extended period, the water tank, supply line, pump/pressure tank and hose bib components need to be drained.

There are two generations of plumbing on the Express Combo Trailer i.e. before Serial Number 051695 and after Serial Number 051695 (inclusive). Draining the tank is universal across all trailers. Draining the supply line to the pump is specific to the particular generation of plumbing.

Tank Drainage: Turn the valve to OFF. Remove the quick-couple cap and connect a drain line to the quick-couple fitting at the main tank valve. Turn the valve to DRAIN and empty the tank. Disconnect the drain hose and reattach the quick-couple cap. Turn the valve back to OFF.



Figure A22
Draining Tank

Pump System Drainage on Combo Trailers above Serial Number 051695 (inclusive)

1. With the main tank valve turned to OFF, disconnect the supply hose from the pump inlet. Connect a drain hose to a pressure tank hose bib and release the pressurized water which will empty the pressure tank. In addition, run the pump until it runs dry. Unplug the pump.

2. Remove the drain hose and open the gate valves to drain any remaining water into the pump box.

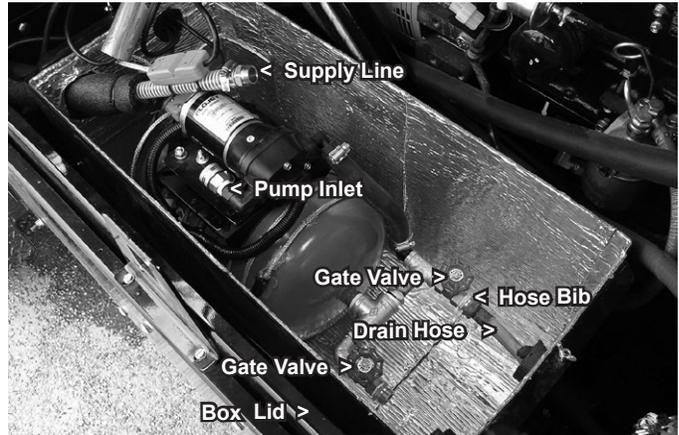


Figure A23
Draining Pressure Tank and Hoses on Units Above
Serial Number 051695

3. With the pump supply hose disconnected at the swivel, remove the poly plug and brass cap from the tank plumbing as shown in Figures A23 and A24. The water in the supply line will gravity flow out of the line.

4. Reconnect the supply line and install the cap and plug to prevent any foreign matter from getting in the line.

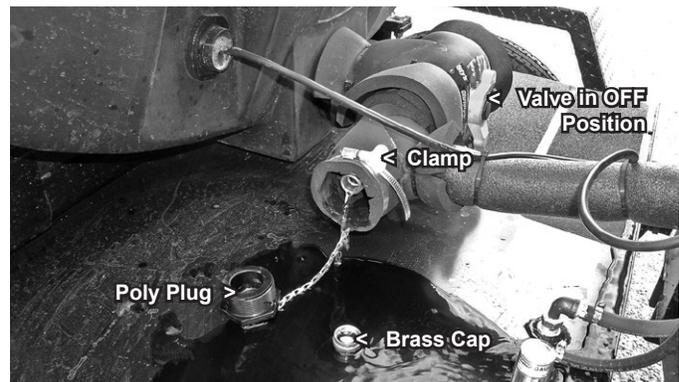


Figure A24
Draining Supply Hose on Units Above
Serial Number 051695



Operation - Express Combo Trailer, cont'd.

⚠ DANGER ⚠

Add only non-toxic RV Antifreeze to the system. Adding toxic automotive antifreeze will cause sickness and death.

Additional Freeze Protection:

If the Combo Trailer needs freeze protection for an extended period, the system can be protected with RV antifreeze.

Drain the tank as described above, add enough RV antifreeze to fill the system. Open outlets at the pump and allow the pump to run long enough to fill the system with RV antifreeze.

When the Combo Trailer is to be used again, thoroughly flush the system with clean water, then drain before refilling tank with water.

Additional Information:

The box lid should be secured on the box in cold weather to retain heat inside the box. During warm weather, remove the lid to keep the pump from overheating. The lid can be stowed between the box and the generator cabinet.

Diesel Tank

The diesel tank is a rectangular steel tank located beneath the 500 gallon water tank. The diesel tank supplies fuel to the generator engine. An un-level trailer can substantially affect the amount of fuel available to the engine.

The trailer should be level or 1/2" lower in the front to maximize fuel availability.

Any trash or foreign matter in the fuel will accumulate in the fuel line filter at the engine. The filter should be replaced when necessary.

The tank can be drained by opening the drain plug located at the right rear corner of the tank bottom. Always be careful when draining the tank to retain the fuel collected for proper disposal.

Use only low sulphur diesel fuel as specified by Allmand generator owner's manual.



*Figure A25
Diesel Tank*

Trailer Operation

Towing a loaded trailer requires added care and concentration for safe operation.

- (1) Loaded trailers require a longer stopping distance. Maintain an increased following distance.
- (2) Trailers turn a shorter radius than the tow vehicle. Swing wide on turns to prevent colliding with other vehicles or structures.
- (3) Loaded trailers require more time to attain highway speeds. Take extra care when merging with traffic.
- (4) Make sure that the tow vehicle is sized to properly tow the trailer at maximum load. The hitch must also be rated to handle the maximum trailer load.
- (5) Make sure that the tow vehicle is properly equipped to safely tow the trailer. The tow vehicle should be equipped with functional light and brake equipment, safety chain anchors, and correctly sized and anchored ball.
- (6) Check the following components regularly:
 - Tires: Check and maintain proper inflation daily.
 - Lights: Inspect lights, wiring and plug daily. Replace damaged or worn components.
 - Brake system: Check fluid level in brake actuator.
 - Hitch: Before each trip, make sure that the hitch is properly locked on the ball. Replace the hitch if it becomes worn or inoperable.
- (7) The trailer is equipped with a step, handholds and slip resistant treads to allow access to the light tower mast.



Operation - Express Combo Trailer, cont'd.



Figure A26
Accessing Light Tower

Chemical Compatibility

The polyethylene tank is designed to hold water. **Wylie polyethylene tanks are not designed to hold petroleum based chemicals or petroleum fuels.**

The steel fuel tank should only be filled with low sulphur diesel.

Other Operations

All set-up, operating and maintenance instructions for the generator and light tower are included in the Allmand Generator Operator's Manual.

Lubrication

The wheel bearings should be serviced every 6 months or every 6,000 miles (whichever comes first). Lubrication may be needed more often if the trailer is used in severe conditions. The wheel hubs should be checked regularly for excess heat. Heat buildup is an indication that the bearings need grease and may soon fail.

The axles are equipped with Accu-Lube hubs. Remove the rubber boot and attach grease gun to the grease zert. Replace the rubber boot after the hub is serviced.

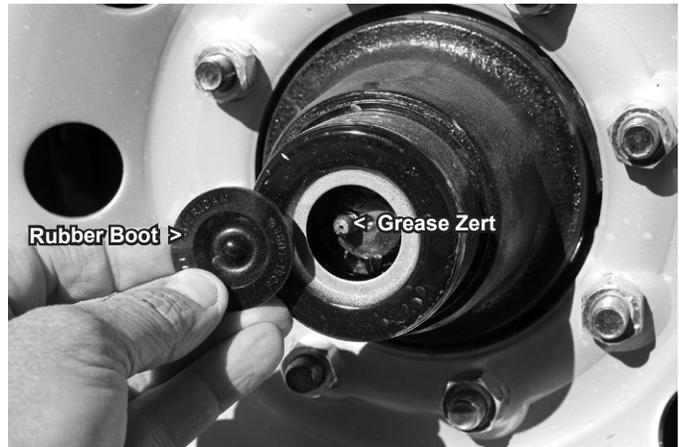


Figure A27
Accu-Lube Hub





1,025 Gal. Express Water Distribution Trailer

Introduction

The Wylie Express Water Distribution Trailers are built of the finest materials and expert workmanship to provide you with years of reliable service. The Express Water Distribution Trailer is equipped with a 1,025 gallon polyethylene tank, a pressurized water distribution system and a freeze protection system. The Express Water Distribution Trailer is a DOT approved trailer that come standard with lights, surge brakes and heavy duty walkway fenders. It is a non-certified trailer with approved components for potable water.

The Wylie Express Water Distribution Trailers are designed to supply water to RV's and mobile offices at oil field or construction sites.

This manual explains how to safely and properly operate and maintain your Express Water Distribution Trailer. Thoroughly read and understand the contents of this manual before operating your trailer. If you have questions or do not understand particular items, contact your nearest Wylie Spray Center or call Wylie Manufacturing at (888) 788-7753. Please keep this manual handy to answer questions you may have as they arise.

Pay Particular Attention To All Safety Suggestions – Their purpose is to assure safe operation of the trailer and prevent injury or damage to yourself or the unit.



Inspection & Setup - Express Water Distribution Trailer

Water Distribution Trailer

The Express Water Distribution Trailer is delivered ready for operation. However, it is suggested that you check lug nuts and other fasteners for proper torque. Make a visual inspection to assure that nothing was damaged in shipping. Report any problems to your dealer or to Wylie Manufacturing.

The owner's manual should be stored in the manual storage sleeve located on the side of the tongue.



*Figure B1
Manual Storage Sleeve*

Attaching Trailer To Truck

⚠ WARNING ⚠

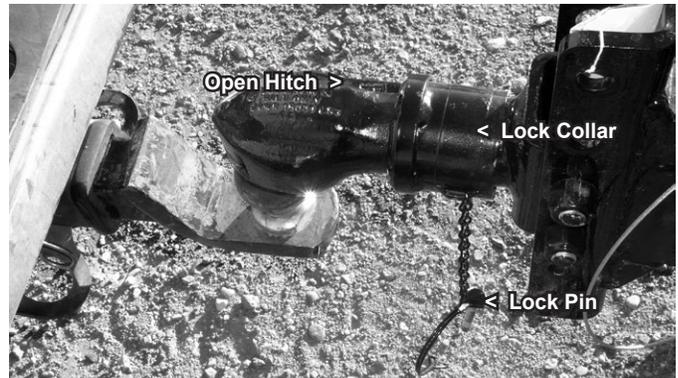
The Water Distribution Trailer should be pulled by a ¾ ton or larger truck. Pulling with a smaller truck could cause loss of control and serious injury or death.

⚠ WARNING ⚠

The ball and hitch must be the same size. Attaching a 2 5/16" hitch to a 2" ball could allow the trailer to become unhitched during transport. Serious bodily injury could follow.

The Wylie Express Water Distribution trailer requires a 2 5/16" ball. Make sure that the ball and hitch are the same size.

Remove the lock pin from the hitch and slide the lock collar back until the hitch opens. Lower the hitch onto the ball. Close the hitch. The spring loaded lock collar will slide forward into place. Insert and fasten the lock pin in place.

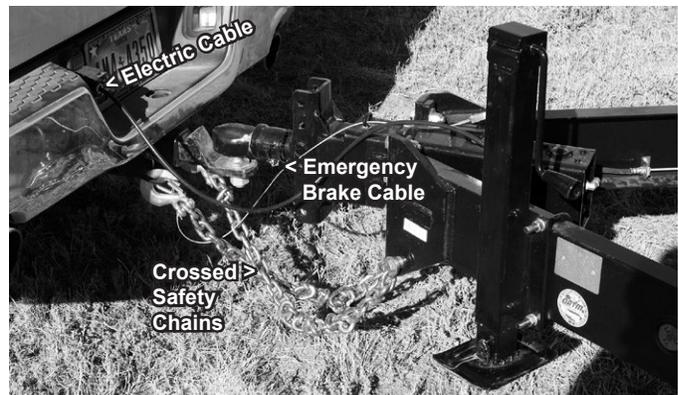


*Figure B2
Hitch in Open Position*

Attach the safety chains to the eyelets. **DOT regulations require that the safety chains cross as they are attached.**

The surge brake system is equipped with an emergency cable that activates the brake system if the trailer becomes unhitched during transport. The emergency cable should be clipped to the tow vehicle.

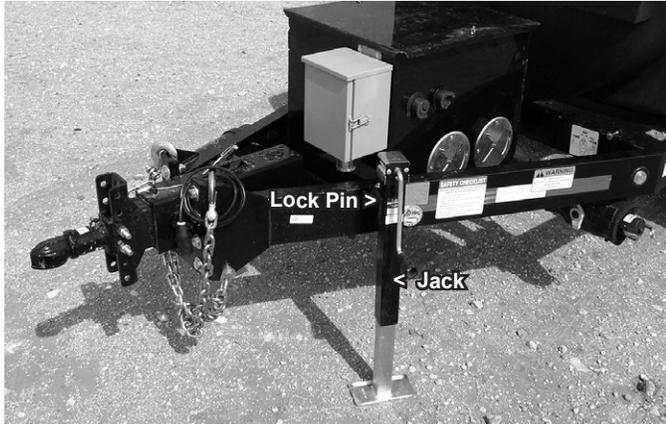
Plug the light cable into the truck light socket. Check the lights to make sure that the clearance, turn, brake and tail lights are working properly.



*Figure B3
Connections to Truck*

The Water Distribution Trailer is equipped with a rotating jack. Once the trailer is attached to the truck, rotate the jack handle to raise the jack pad off the ground. Remove the lock pin and rotate the jack parallel with the tongue, then reinsert the lock pin or remove the jack for transport. (See Fig. B4)

Inspection & Setup - Express Water Distribution Trailer, cont'd



*Figure B4
Jack Operation*

The Wylie Water Distribution trailer is equipped with a height adjustable hitch. The trailer should travel level when the tank is full. To level the hitch, lower the jack to support the tongue, remove the hitch bolts, adjust the tongue height as needed, and reinsert the hitch bolts.



*Figure B6
Level Trailer for Operation*

The Water Distribution trailer should be placed in a level area to assure optimal operation. If the placement is not level, adjust the jack stand to level the trailer.



*Figure B5
Adjust Hitch Height for Level Trailer*



Operation - Express Water Distribution Trailer

The Express Water Distribution trailer is designed to provide water to portable offices, RV's, or work trailers at temporary job sites. All the components of this non-certified trailer are rated for potable water. The Water Distribution trailer requires 110 volt power for the pump and freeze protection system.

Filling the Water Tank

The 1,025 gallon tank can be filled through the quick-fill fitting, the tank fillwell or the optional anti-siphon fill. To fill through the fillwell, remove the tank lid by rotating counterclockwise and insert the customer supplied fill hose. Make sure the hose is clean and free of any foreign matter. The hose end should stay above the water level.



Figure B7
Filling Tank Through Fillwell

The water tank is equipped with a "bottom load" three way valve. This valve allows flow to either PUMP or FILL/DRAIN with a center OFF position which closes the valve. The valve and hose is wrapped with freeze protection insulation and heat cord. See more information on this system on pages 22 and 23.



Figure B8
Filling Tank Through 2" Quick Fill

To fill the tank through the quick-fill valve, place tank valve to OFF position before removing quick-fill cap. Remove quick-fill Cap, attach the fill line 2" coupler and move valve to FILL-DRAIN position for filling. When tank is full, rotate 3-way valve to the OFF position before disconnecting the fill hose from the quick-fill valve. Replace the cap. Rotate the 3-way valve to the PUMP position.

If the tank is being filled from a municipal water supply, it is recommended that an optional anti-siphon fill kit (W1241FILL) be mounted on the fender.



Figure B9
Optional Anti-Siphon Fill

NOTICE

Fill the tank with non-heated water. The pump is designed to pump water with a maximum temperature of 95° F.

Connecting Water Lines

Route the water distribution lines (not included) through the line ports in the side of the box. Up to 4 distribution lines can be supplied simultaneously. (See Figure B10)

During cold weather, the distribution lines must be independently protected from freezing. The trailer's freeze protection system will only protect the trailer components.

Operation - Express Water Distribution Trailer, cont'd.

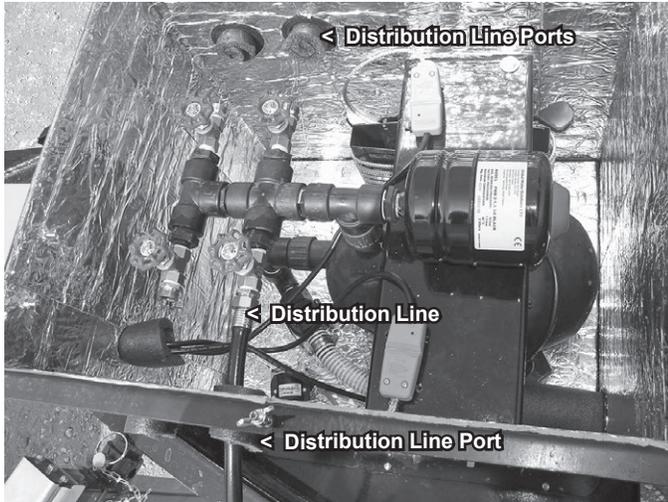


Figure B10

Connecting Distribution Lines

Connecting to Electric Power



WARNING



The incoming power supply must be properly grounded to prevent accidental shock and injury.

The pump and freeze protection system is powered by 110 VAC-60 Hz electricity. All of the electrical connections are located inside the weather sealed electrical box mounted on the front of the pump box.

Route the power cable through the conduit in the bottom of the box. Plug the incoming power cable into the power plug. The power cable should, at minimum, be a heavy duty, outdoor grade, 3 conductor, 12 gauge cord with a 15 amp capacity.

Make sure that the pump cable and heater cables are plugged into the proper receptacles. (See Figure B11)

NOTICE

The ThermoCube is a thermostatically controlled electrical outlet. Only the heat cables should be plugged into the ThermoCube.

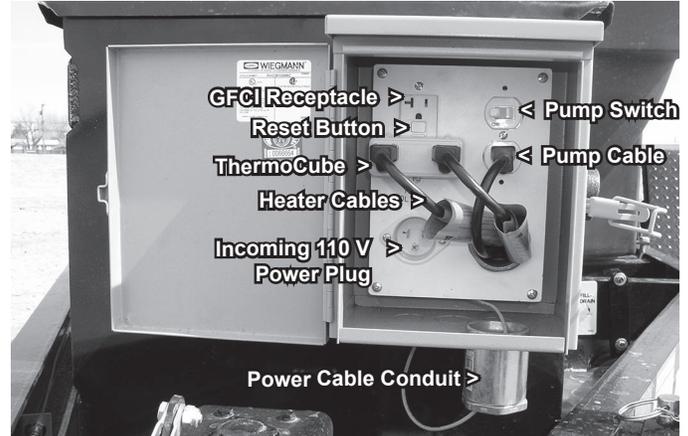


Figure B11

Electrical Box

Operating the Pump

The Express Water Distribution trailer is equipped with a 22 GPM on-demand pump and an accumulator that will provide a smooth, constant flow. It is also equipped with an electronic safety device to prevent the dry-running of the pump.

The power to the pump switch and plug is routed through the GFCI receptacle and is therefore protected by the reset button. If the pump will not operate, check that the reset button is not tripped. Press the button to reset.

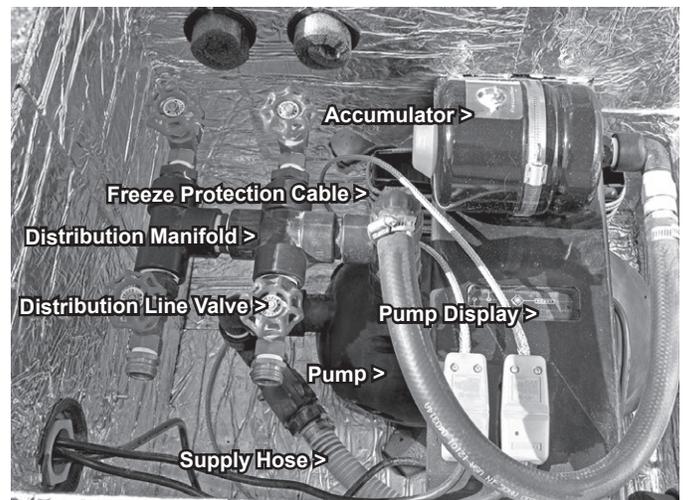


Figure B12

Pump Components

The tank must be filled with a minimum of 300 gallons of water to assure sufficient head pressure to prime the pump.



Operation - Express Water Distribution Trailer, cont'd.

Make sure that the 3-way valve (see Figure B8) is turned to "Pump". Open the appropriate distribution line valves. Flip the Pump Switch to "On". The pump will fill the distribution lines. Open faucets to allow air to bleed from the lines. Close the faucets once the water is flowing smoothly. The pump will automatically shut off at 70 psi and will start again when the system drops to 30 psi.

Dry-Run Protection --

If the pump senses that it is not drawing any water, it will automatically switch-off after approx. 45 seconds. The red "ALARM" LED on the electronic display will begin to flash. After having restored the flow of water to the pump, press the RESET pad to restart the pump.

If the alarm persists, or rather the user does not re-establish the flow of water and reset the pump, the automatic reset will attempt to restart the pump after 1 hour, 5 hours, 20 hours, and then once every 24 hours. The electronic display continues to signal the lack of water from the first intervention of the dry run protection until the pump starts to operate correctly: flashing red LED with one flash and one pause. After having re-establishing the flow of water, press the RESET button to restart the pump.

Electronic Display Signals:

Green LED (Power) on: The pump is connected to the main power and is ready to supply water (as soon as the tap is opened).

Yellow LED (Pump) on: The pump is supplying water.

Red LED (Alarm) with 1 flash cycles: The pump is not functioning due to lack of water on the suction side: the dry running protection program is activated.

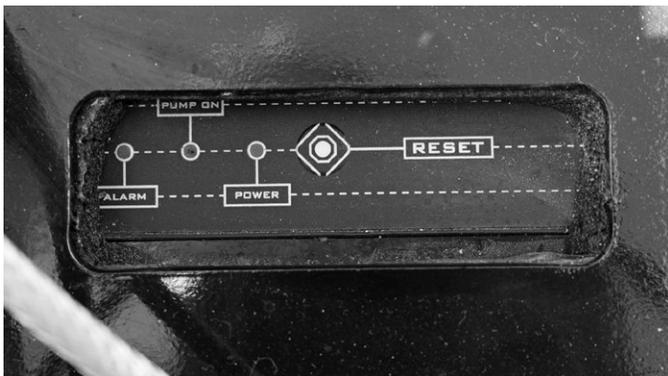


Figure B13

Pump Electronic Display and Reset Pad

Cold Weather Operation

If the Express Water Distribution trailer is operated in temperatures that will be near or below freezing, it is necessary to protect the pump system by:

- Close the side vents on both sides of the box

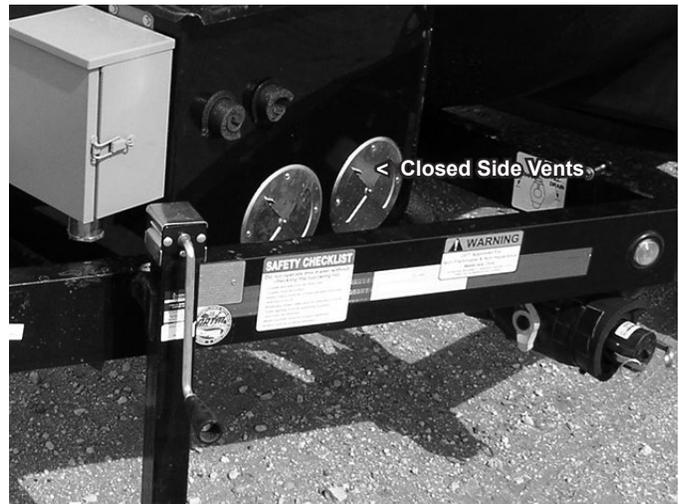


Figure B14
Closed Side Vents

- Secure the box lid with the hinged lid spacers in the cold weather position so the lid seals the box.

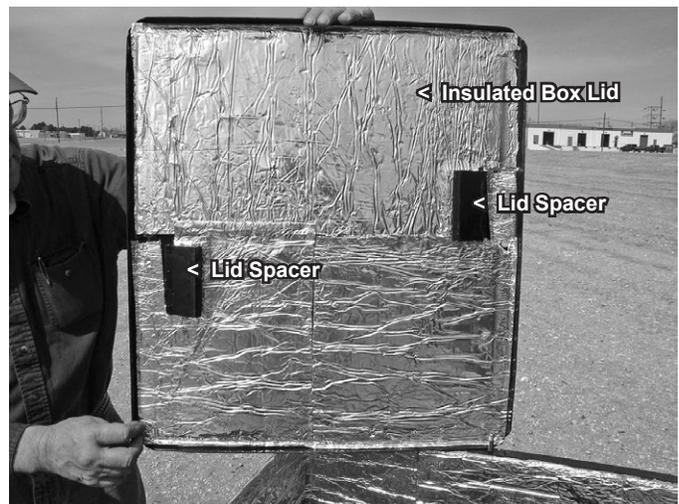


Figure B15
Lid with Spacers in Cold Weather Position;
Rotate Spacers for Hot Weather

Operation - Express Water Distribution Trailer, cont'd.

- Plug the two heat cables into the dual outlet thermostat (ThermoCube), and plug the thermostat into the dual receptacle. (Optional: If thermostat is missing or broken, plug heat cables directly into dual receptacle.)



Figure B16
Freeze Protection Connections

The ThermoCube has a thermostatically controlled switch which turns on at 35°F and goes off at 45°F.

CAUTION

Heater cords carry 110 VAC. Unplug cords if cut or damaged. Failure to do so could cause electrical shock and injury.

There are two heat cables. One heat cable wraps around the supply line while the other is coiled inside the pump box. They are internally self-regulating and will supply heat according to the temperature in the components they protect. In warmer weather, these heat cords should be unplugged.

These heat cords conduct 110 VAC and should be handled with caution. They are shielded with an external, braided wire which acts as a physical shield and are also safety grounded. Should the heat cord be cut or damaged, the cord should be unplugged from the ThermoCube and replaced. Call the factory for replacement parts.

NOTICE

Pump must not be allowed to freeze. In the event the pump may freeze (e.g. due to loss of electricity to heater), to prevent damage, the pump must be removed and stored where it will not freeze because it can not be fully drained. Note: Pump can be removed without the use of tools. Unplug electrical cord from switch box. Disconnect water lines, inlet and outlet to accumulator. Remove cover plate on pump. Pump is not bolted to floor of pump box. Lift pump out and store in a freeze protected environment.

A damaged pump due to freezing is NOT covered under the warranty.

Hot Weather Operation

If the Express Water Distribution trailer is operated in temperatures above 80°, prevent overheating by:

- Open the side vents on both sides of the box.



Figure B17
Hot Weather Box Configuration

- Raise lid to provide 1/2" gap for air ventilation by rotating hinged lid spacers to be captive between box and lid. (See Figure B17)



Operation - Express Water Distribution Trailer, cont'd.

General Operation

- Keep the lid on in all operations. The pump should not be subjected to direct sun, rain or direct streams of water.



Unplug the pump and heater power cords before servicing any plumbing. Failure to do so could cause electrical shock, injury or death.

Storage

If the Express Water Distribution trailer is to be stored or parked for an extended time, it is best to drain the system or charge it with RV antifreeze.

Draining the system:

- Disconnect the power from the trailer.
- Relieve the system pressure by opening a water tap.
- Drain the tank by removing the quick-fill cap and turn the 3-way valve to "Fill/Drain".
- Any residual water in the suction line can be drained by:
 - Loosen the lower drain clamp, remove the plug, then unscrew the cap. This will allow residual water on the suction side of the pump to drain. Replace the cap and plug to keep the system clean.

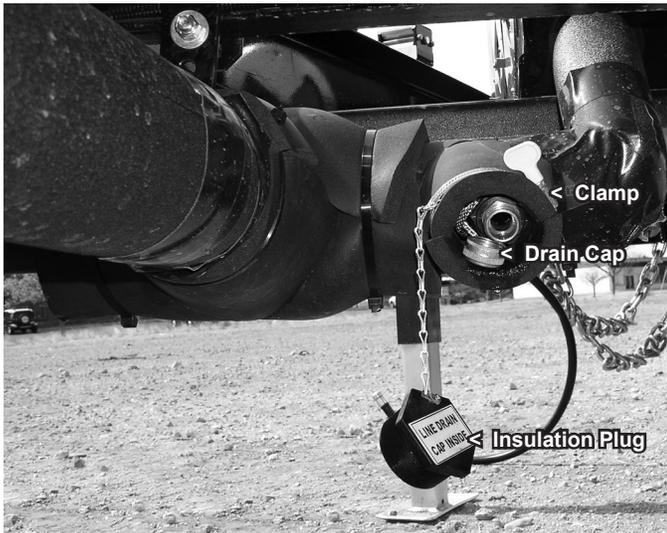


Figure B18
Suction Line Drain Cap

- Disconnect the distribution lines and open the distribution line valves.
- Disconnect the supply line inside the box from the pump inlet port by releasing the quick coupler.
- Disconnect the accumulator hose coupler.

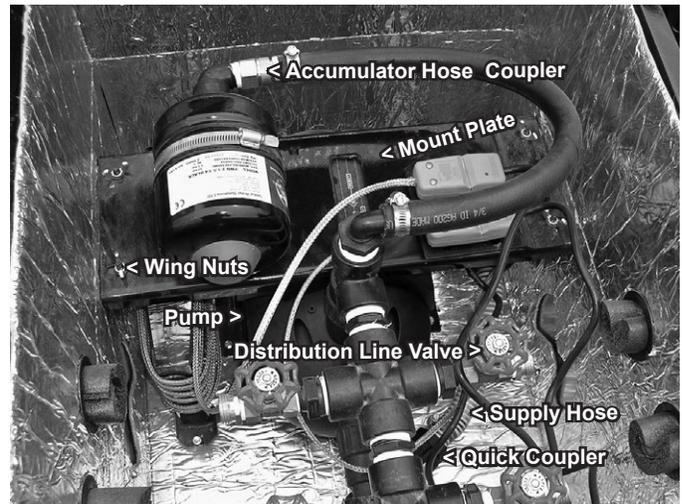


Figure B19
Pump Components

- Unplug the pump cord from the receptacle and pull the plug into the pump box.
- Remove the wing nuts from the mount plate and lift the pump assembly from the box. Store in a temperature controlled area.

Protection with RV antifreeze:

As an alternative to draining the system and removing the pump, the system can be protected with RV antifreeze:



Add only non-toxic RV Antifreeze to the system. Adding toxic automotive antifreeze will cause sickness and death.

- Turn the pump off at the switch.
- Drain the tank as described above.
- Without losing the pump's prime, pour a few gallons of RV antifreeze in the main tank.

Operation - Express Water Distribution Trailer, cont'd.

- Turn the pump on. Open the taps and/or distribution line valves until the RV antifreeze comes through the lines.
- Turn the pump off and unplug the power cable.

Trailer Operation

Towing a loaded trailer requires added care and concentration for safe operation.

(1) Loaded trailers require a longer stopping distance. Maintain an increased following distance.

(2) Trailers turn a shorter radius than the tow vehicle. Swing wide on turns to prevent colliding with other vehicles or structures.

(3) Loaded trailers require more time to attain highway speeds. Take extra care when merging with traffic.

(4) Make sure that the tow vehicle is sized to properly tow the trailer at maximum load. The hitch must also be rated to handle the maximum trailer load.

(5) Make sure that the tow vehicle is properly equipped to safely tow the trailer. The tow vehicle should be equipped with functional light and brake equipment, safety chain anchors, and correctly sized and anchored ball.

(6) Check the following components regularly:
Tires: Check and maintain proper inflation daily.

Lights: Inspect lights, wiring and plug daily. Replace damaged or worn components.

Brake system: Check fluid level in brake actuator.

Hitch: Before each trip, make sure that the hitch is properly locked on the ball. Replace the hitch if it becomes worn or inoperable.

Chemical Compatibility

The polyethylene tank is designed to hold water. **Wylie polyethylene tanks are not designed to hold petroleum based chemicals or petroleum fuels.**

Lubrication

The wheel bearings should be serviced every 6 months or every 6,000 miles (whichever comes first). Lubrication may be needed more often if the trailer is used in severe conditions. The wheel hubs should be checked regularly for excess heat. Heat buildup is an indication that the bearings need grease and may soon fail.

The axles are equipped with Accu-Lube hubs. Remove the rubber boot and attach grease gun to the grease zert. Replace the rubber boot after the hub is serviced.

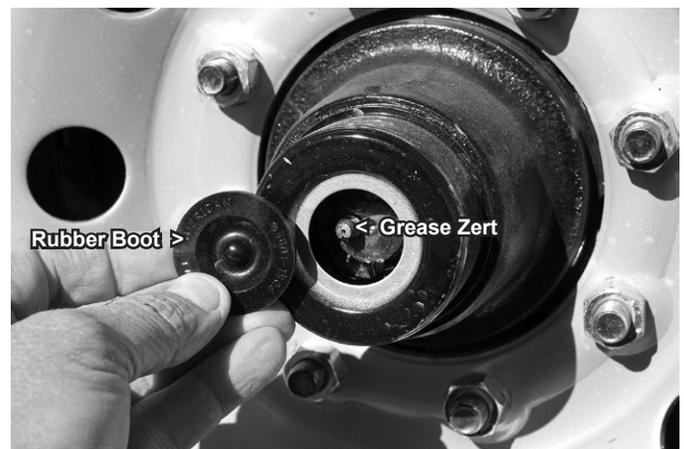


Figure B20
Accu-Lube Hub



500 Gal. Express Generator Trailer

Introduction

The Wylie Express Generator Trailers are built of the finest materials and expert workmanship to provide you with years of reliable service. The Express Generator Trailer is equipped with a Wacker Neuson G14 generator, 500 gallon polyethylene tank, a pressurized water distribution system and an optional freeze protection system. The Express Generator Trailer is a DOT approved trailer that come standard with lights, surge brakes and heavy duty walkway fenders. It is a non-certified trailer with approved components for potable water.

The Wylie Express Generator Trailers are designed to supply water and power to RV's and mobile offices at oil field or construction sites.

This manual explains how to safely and properly operate and maintain your Express Generator Trailer. Thoroughly read and understand the contents of this manual before operating your trailer. If you have questions or do not understand particular items, contact your nearest Wylie Spray Center or call Wylie Manufacturing at (888) 788-7753. Please keep this manual handy to answer questions you may have as they arise.

Pay Particular Attention To All Safety Suggestions – Their purpose is to assure safe operation of the trailer and prevent injury or damage to yourself or the unit.

Inspection & Setup - Express Generator Trailer

Express Generator Trailer

Your Express Generator Trailer is delivered ready for operation. However, it is suggested that you check lug nuts and other fasteners for proper torque. Check the motor to assure that it has the proper oil level (see the motor operator's manual for details). Make a visual inspection to assure that nothing was damaged in shipping. Report any problems to your dealer or to Wylie Manufacturing.

The owner's manual should be stored in the manual storage bracket located inside the engine compartment.



Figure C1
Manual Storage Bracket

Attaching Trailer To Truck



The Generator Trailer should be pulled by a ¼ ton or larger truck. Pulling with a smaller truck could cause loss of control and serious injury or death.



The ball and hitch must be the same size. Attaching a 2 5/16" hitch to a 2" ball could allow the trailer to become unhitched during transport. Serious bodily injury could follow.

The Wylie Express Generator trailer requires a 2 5/16" ball. Make sure that the ball and hitch are the same size.

Remove the lock pin from the hitch and slide the lock collar back until the hitch opens. Lower the hitch onto the ball. Close the hitch. The spring loaded lock collar will slide forward into place. Insert and fasten the lock pin in place.

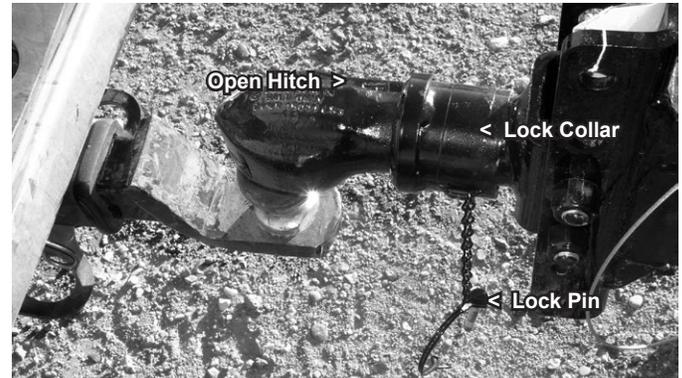


Figure C2
Hitch in Open Position

Attach the safety chains to the eyelets. DOT regulations require that the safety chains cross as they are attached.

The surge brake system is equipped with an emergency cable that activates the brake system if the trailer becomes unhitched during transport. The emergency cable should be clipped to the tow vehicle.

Plug the light cable into the truck light socket. Check the lights to make sure that the clearance, turn, brake and tail lights are working properly.

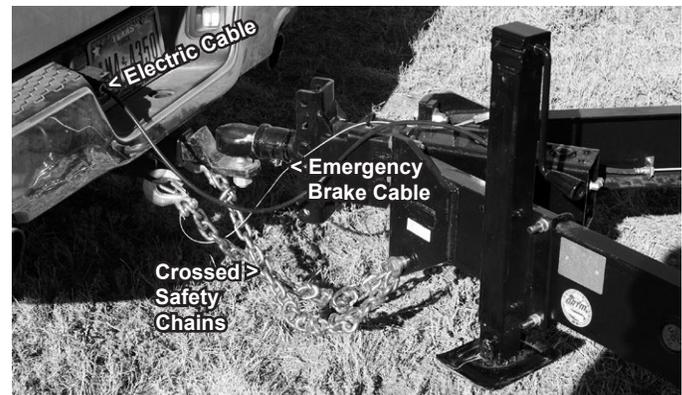


Figure C3
Connections to Truck

The Generator Trailer is equipped with a drop-leg jack. Once the trailer is attached to the truck, rotate the jack handle to raise the jack pad to the highest point. Remove the lock pin and raise the drop-leg to the highest setting and insert the lock pin. (See Fig. C4)



Inspection & Setup - Express Generator Trailer, cont'd.

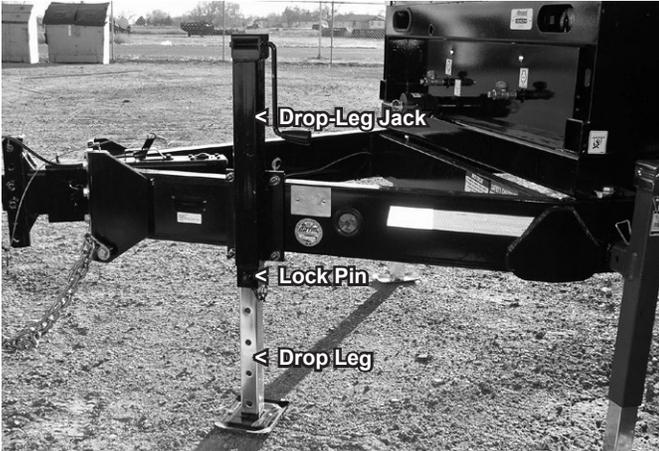


Figure C4
Drop-Leg Jack Operation

The Wylie Express Combo trailer is equipped with a height adjustable hitch. The trailer should travel level when the tank is full. To level the hitch, lower the jack to support the tongue, remove the hitch bolts, adjust the tongue height as needed, and reinsert the hitch bolts.



Figure C5
Adjust Hitch Height for Level Trailer

Setting Up Trailer for Operation

Position the trailer in a relatively level area. Lower and set the jack drop-leg, then rotate the handle to raise the trailer and unhook from the towing vehicle.

Fill the fuel tank with low sulphur diesel through the fill cap on the right front corner of the tank.



Figure C6
Diesel Tank Fill Cap

Do not add fuel to the Wacker Neuson fuel tank, inside the generator cabinet. The engine only pulls fuel from the 240 Gal. diesel tank under the water tank.

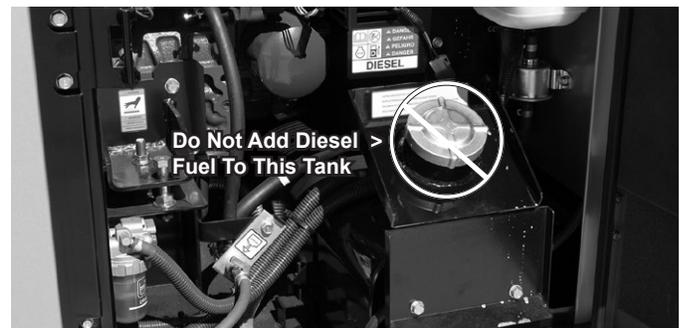


Figure C7
Generator Diesel Tank is Disconnected

Connecting a Ground Rod

It is strongly recommended to comply with local codes regarding a ground rod (not included due to various local regulations). Any ground rod should be connected to the grounding lug in the generator connection panel.



Figure C8
Connect Ground Rod to Grounding Lug



Operation - Express Generator Trailer

The Express Generator Trailer is designed to provide water and power to portable offices, RV's, or work trailers at temporary job sites. All the fluid components of this non-certified trailer are rated for potable water.

Filling the Water Tank

The 500 gallon water tank can be filled through the fillwell or the quick-fill fitting. To fill through the fillwell, remove the tank lid by rotating counterclockwise and insert the customer supplied fill hose. Make sure the hose is clean and free of any foreign matter. The hose end should stay above the water level.



Figure C9
Filling Tank Through Fillwell

The water tank is equipped with a “bottom load” three way valve. This valve allows flow to either PUMP or FILL/ DRAIN with a center OFF position which closes the valve. The valve and hose may be wrapped with freeze protection insulation and heat cord. See more information on this system on page 32.

To fill the tank through the quick-fill valve, place tank valve to OFF position before removing quick-fill cap. Remove quick-fill Cap, attach the fill line 2” coupler and move valve to FILL-DRAIN position for filling.

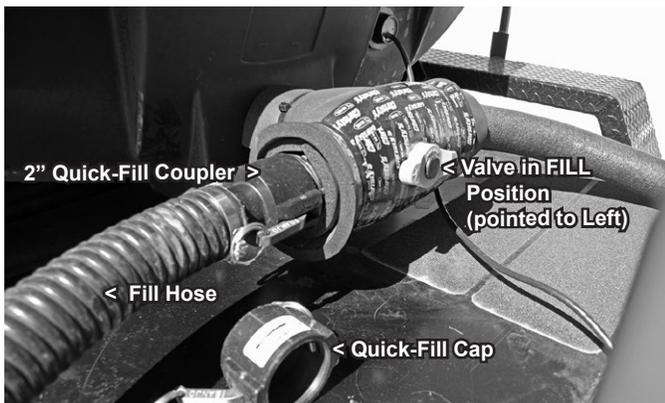


Figure C10
Filling Tank Through Quick-Fill Fitting

If the tank is being filled from a municipal water supply, it is recommended that an optional anti-siphon fill kit (W1440FILL) be mounted on the fender.



Figure C11
Optional Anti-Siphon Fill

When tank is full, rotate 3-way valve to the OFF position before disconnecting the fill hose from the quick-fill valve. Replace the cap. Rotate the 3-way valve to the PUMP position.

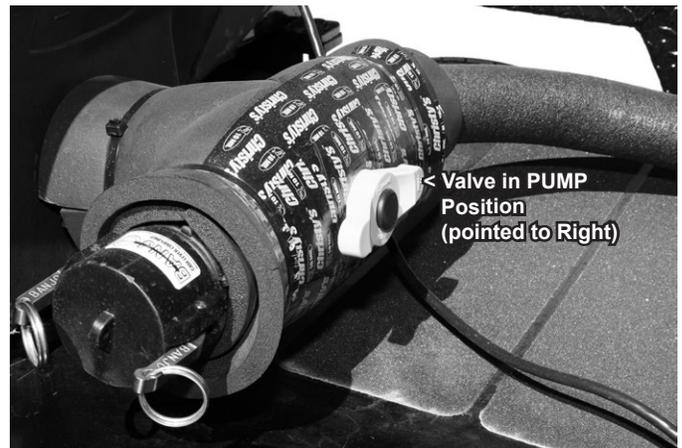


Figure C12
3-Way Valve in PUMP Position

Connection to the Water System

The water pump and pressure tank are located in the pump box on the tongue of the trailer. Unscrew the wing nuts and remove the top of the box.



Operation - Express Generator Trailer, cont'd.

Route the distribution hoses through the insulated holes in side of the pump box. Connect distribution hose fittings to the two output gate valves from the pump.

The distribution hoses may need freeze protection which is not included in the freeze protection kit.

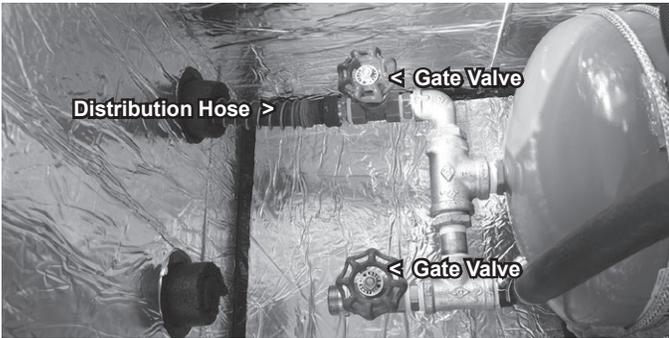


Figure C13
Distribution Hose Connection

NOTICE

Total available Amp load is 60 Amps. Plugging in electrical loads totaling more than 60 Amps through various plugs and circuits will cause the main breaker to trip.

NOTICE

This main circuit breaker on the generator console should be turned OFF before shutting down the diesel engine/generator. Failure to turn off this circuit breaker can damage the generator circuit and is not covered by warranty.

The Wacker Neuson Generator Operator's Manual should be read and understood.

All of the circuits in the main box and the auxiliary box are protected by the Main Circuit breaker (60 Amps) in the generator control panel. A variety of plugs and circuits are available for various applications, but only a total of 60 Amps are available from the G14 generator.

Water System Electrical Connections

The pump should be plugged into the 110 Volt GFCI outlet in the auxiliary electrical box.

Note: Each plug in the auxiliary electrical box (3-prong 30 Amp, 4-prong 50 Amp, and GFCI 20 Amp) is protected by its own breaker located above the plugs on the panel.

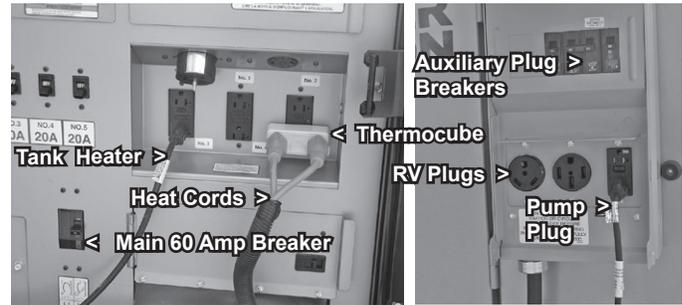


Figure C14
Electrical Connections (with optional freeze protection)

Water System Operation

With Water Tank valve positioned to PUMP and the two hose bibs in the pump box turned off, plug the water pump cord into the 110 Volt GFCI outlet in the auxiliary electrical box. There is no "Off/On" switch as the water system uses a demand pump that cycles on and off according to water pressure; ON at 25 psi or less, OFF at 45 psi.

The generator must be running to provide power to the water pump. Refer to the Wacker Neuson generator owner's manual for operating instructions of the generator.

DANGER

Turn the pump and heater breakers OFF or unplug the pump and heaters before servicing any plumbing. Failure to do so could cause electrical shock, injury or death.

Operation - Express Generator Trailer, cont'd.

The water supply system includes a pressure tank which provides steady water flow and reduced pump cycling. The tank is pressurized (air) at the factory to 25 psi. The pressure can be checked in the field using a standard tire pressure gauge. A protective cap covers the air valve on the rear of the pressure tank. Check the air pressure when the tank is empty.



Figure C15
Pressure Tank Air Valve

With the pump running, open the gate valves on the output hose bibs. Allow several minutes for the tank to fill and to purge air from the distribution hoses.

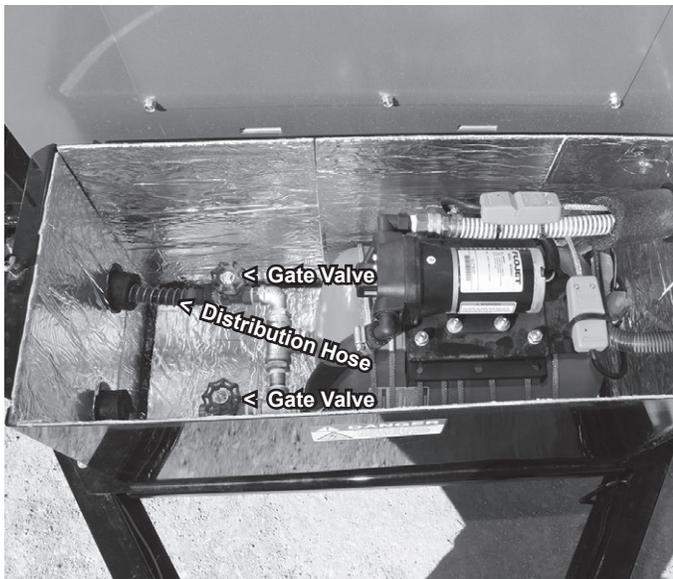


Figure C16
Water Pump Connections

Possible Problems

1. If the pump is not operating, the system may be pressurized and the pump's internal pressure switch is activated. The pump will resume operation when sufficient water is drawn from the system to lower the pressure in the tank.
2. The electrical GFCI outlet into which the pump is plugged can trip. Push the button in the middle of the outlet to reset.
3. There is also a circuit breaker which protects the electrical outlet which may need to be reset. This circuit breaker is located just above the outlet on the auxiliary panel.

NOTICE

The ThermoCube is a thermostatically controlled electrical outlet. Only the heat cords should be plugged into the ThermoCube.

4. If the pump is mistakenly plugged into the ThermoCube (see below), the internal thermostat will shut off the outlets in temperatures above 45°F. The pump should only be plugged into the GFCI electrical outlets.
5. There is a line strainer in the garden hose adapter just upstream of the pump. If the filter is clogged, flow will be diminished or shut off completely. Turn the main tank valve off and unplug the pump before loosening this garden hose adapter.

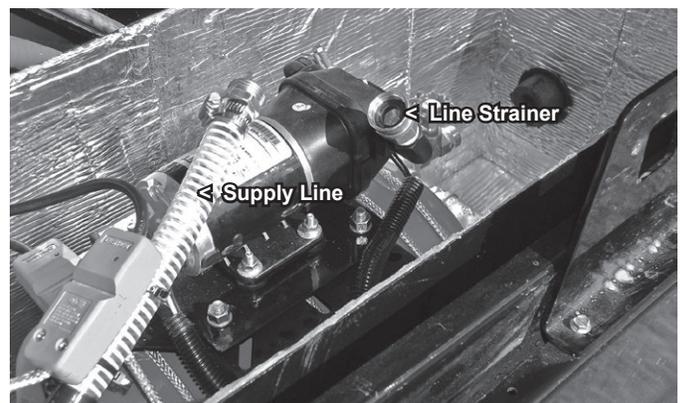


Figure C17
Line Strainer



Operation - Express Generator Trailer, cont'd.

Optional Freeze Protection System

Your Express Generator Trailer may have been equipped with an optional factory installed freeze protection system. This system utilizes a variety of components to protect the water system on the Express Generator Trailer.

Heat Cords:

There are two heat cords that protect the pump supply line and the water tank and components in the pump box. These two heat cords should plug into the ThermoCube which in turn plugs into the GFCI electrical receptacle on the main generator panel. The ThermoCube has a thermostatically controlled switch which turns on at 35°F and goes off at 45°F. One heat cord wraps around the supply line while the other wraps around the pressure tank components. They are internally self-regulating and will supply heat according to the temperature in the components they protect. In warmer weather, these heat cords should be unplugged.

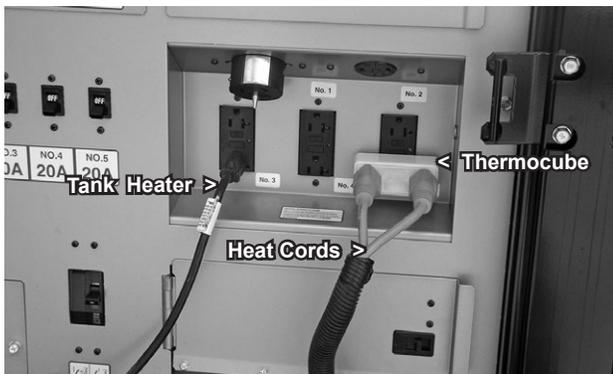


Figure C18
Heat Cord Connections



Heater cords carry 110 VAC. Unplug cords if cut or damaged. Failure to do so could cause electrical shock and injury.

These heat cords conduct 110 VAC and should be handled with caution. They are shielded with an external, braided wire which acts as a physical shield and are also safety grounded. Should the heat cord be cut or damaged, the cord should be unplugged from the ThermoCube and replaced. Call the factory for replacement parts.

Tank Heater:

There is a 110 VAC, 1500 W, thermostatically controlled tank heater mounted in the water tank. The internal thermostat turns on at 38° F and off at 45° F. The tank heater power cord reaches from the tank forward into the generator cabinet and should be plugged into one of the 110 Volt outlets on the main generator panel. It should not be plugged into the ThermoCube.

This heater is mounted in one of the tank bulkheads slightly above and to the side of the main tank water valve. In cold weather the water level should not be allowed to fall below the height of the tank heater.

The tank heater cord should be unplugged in non-freezing weather.

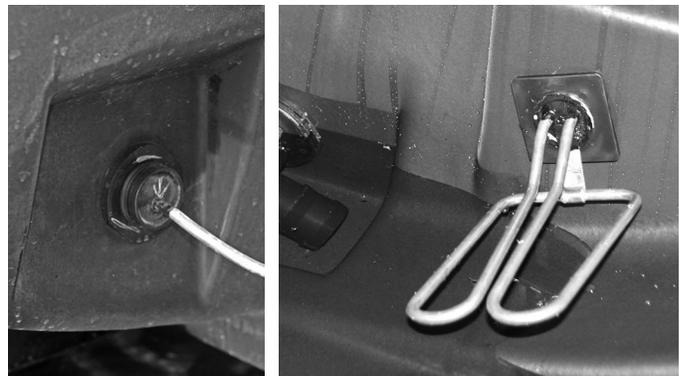


Figure C19
Tank Heater
Outside Inside

Supply Line Insulation:

Foam wrap tubing and foam tees surround the supply line, 3-way valve and heat cord. These connections should remain intact unless necessary for repairs, etc. Care must be taken when reassembling that the cord and foam components are placed in their original locations to assure proper freeze protection.



Figure C20
Foam Insulation

Operation - Express Generator Trailer, cont'd.

Water System Drainage:

The supply line leading from the water tank to the pump is heated in cold weather when the generator is running. During transport or periods of inactivity, it may need to be protected. Running the generator during transport is a simple method of protecting the tank and supply lines. If the generator is not available or if the unit will not operate for an extended period, the water tank, supply line, pump/pressure tank and hose bib components need to be drained.

Tank Drainage: Turn the valve to OFF. Remove the quick-couple cap and connect a drain line to the quick-couple fitting at the main tank valve. Turn the valve to DRAIN and empty the tank. Disconnect the drain hose and reattach the quick-couple cap. Turn the valve back to OFF.



Figure C21
Draining Tank

Pump System Drainage:

1. With the main tank valve turned to OFF, disconnect the supply hose from the pump inlet. Connect a drain hose to a pressure tank Gate Valve and release the pressurized water which will empty the pressure tank. In addition, run the pump until it runs dry. Unplug the pump.

2. Remove the drain hose and open the gate valves to drain any remaining water into the pump box.

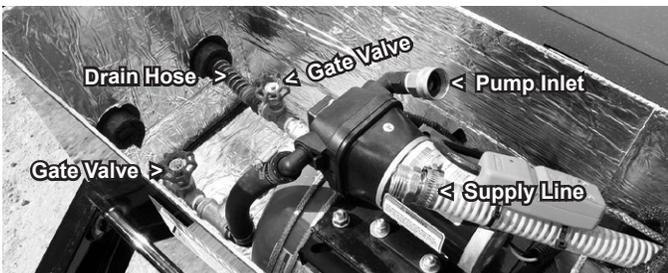


Figure C22
Draining Pressure Tank and Hoses

3. With the pump supply hose disconnected at the swivel, remove the poly plug and brass cap from the tank plumbing as shown in Figures C23 and C24. The water in the supply line will gravity flow out of the line.

4. Reconnect the supply line and install the cap and plug to prevent any foreign matter from getting in the line.

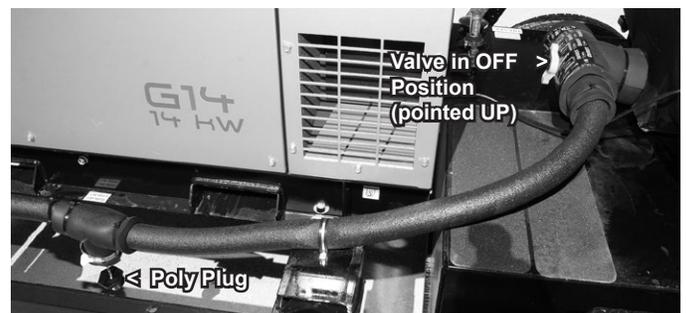


Figure C23
Draining Supply Hose

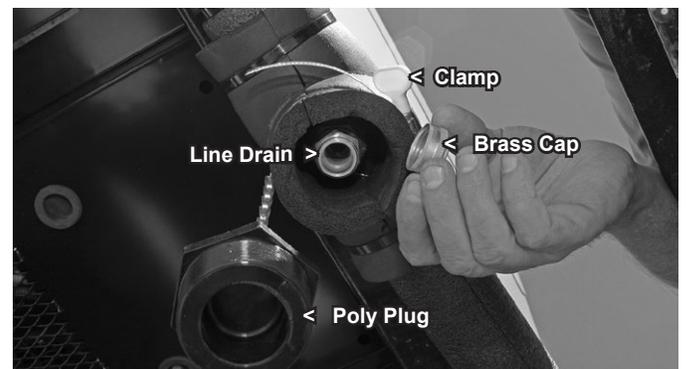


Figure C24
Draining Supply Hose

Additional Freeze Protection:

If the Generator Trailer needs freeze protection for an extended period, the system can be protected with RV antifreeze.

⚠ DANGER ⚠

**Add only non-toxic RV Antifreeze to the system.
Adding toxic automotive antifreeze will cause sickness and death.**



Operation - Express Generator Trailer, cont'd.

Drain the tank as described above, add enough RV antifreeze to fill the system. Open outlets at the pump and allow the pump to run long enough to fill the system with RV antifreeze.

When the Generator Trailer is to be used again, thoroughly flush the system with clean water, then drain before refilling tank with water.

Diesel Tank

The diesel tank is a rectangular steel tank located beneath the 500 gallon water tank. The diesel tank supplies fuel to the generator engine. An un-level trailer can substantially affect the amount of fuel available to the engine.

The trailer should be level or 1/2" lower in the front to maximize fuel availability.

Any trash or foreign matter in the fuel will accumulate in the fuel line filter at the engine. The filter should be replaced when necessary.

The tank can be drained by opening the drain plug located at the right rear corner of the tank bottom. Always be careful when draining the tank to retain the fuel collected for proper disposal.

Use only low sulphur diesel fuel as specified by Wacker Neuson generator owner's manual.

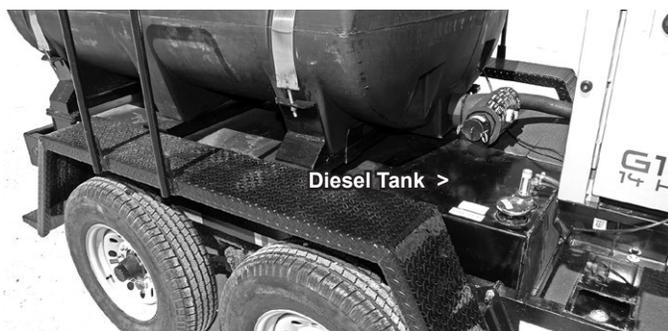


Figure C25
Diesel Tank

Trailer Operation

Towing a loaded trailer requires added care and concentration for safe operation.

(1) Loaded trailers require a longer stopping distance. Maintain an increased following distance.

(2) Trailers turn a shorter radius than the tow vehicle. Swing wide on turns to prevent colliding with other vehicles or structures.

(3) Loaded trailers require more time to attain highway speeds. Take extra care when merging with traffic.

(4) Make sure that the tow vehicle is sized to properly tow the trailer at maximum load. The hitch must also be rated to handle the maximum trailer load.

(5) Make sure that the tow vehicle is properly equipped to safely tow the trailer. The tow vehicle should be equipped with functional light and brake equipment, safety chain anchors, and correctly sized and anchored ball.

(6) Check the following components regularly:
Tires: Check and maintain proper inflation daily.

Lights: Inspect lights, wiring and plug daily. Replace damaged or worn components.

Brake system: Check fluid level in brake actuator.

Hitch: Before each trip, make sure that the hitch is properly locked on the ball. Replace the hitch if it becomes worn or inoperable.

Chemical Compatibility

The polyethylene tank is designed to hold water. **Wylie polyethylene tanks are not designed to hold petroleum based chemicals or petroleum fuels.**

Lubrication - Express Generator Trailer

Lubrication

The wheel bearings should be serviced every 6 months or every 6,000 miles (whichever comes first). Lubrication may be needed more often if the trailer is used in severe conditions. The wheel hubs should be checked regularly for excess heat. Heat buildup is an indication that the bearings need grease and may soon fail.

The axles are equipped with Accu-Lube hubs. Remove the rubber boot and attach grease gun to the grease zert. Replace the rubber boot after the hub is serviced.



Figure C26
Accu-Lube Hub





Express Combo Trailer Troubleshooting Guidelines

| Problem | Cause | Solution |
|---|--|--|
| Surge trailer brakes not operating | <ol style="list-style-type: none"> (1) Brake system fluid low (2) Brake shoes improperly adjusted (3) Brake shoes worn | <ol style="list-style-type: none"> (1) Add proper fluid (2) Adjust brake shoes (3) Replace brake shoes |
| Brakes will not release | <ol style="list-style-type: none"> (1) Emergency brake system is engaged | <ol style="list-style-type: none"> (1) Surge brakes -- Disengage emergency brake lever |
| One or more lights not working | <ol style="list-style-type: none"> (1) Light bulb burned out (2) Loose or broken wire | <ol style="list-style-type: none"> (1) Replace light bulb (2) Repair loose or broken wire |
| Trailer lighting system is not working | <ol style="list-style-type: none"> (1) Electric trailer plug not properly plugged into vehicle (2) Blown fuse (3) Loose or broken wire | <ol style="list-style-type: none"> (1) Properly connect to tow vehicle (2) Replace fuse (3) Repair loose or broken wire |
| Pump Will Not Operate | <ol style="list-style-type: none"> (1) Discharge gate valves closed (2) Pump not plugged into GFCI outlet (3) One or more circuit breakers tripped (4) GFCI outlet reset button tripped (5) Tank is pressurized | <ol style="list-style-type: none"> (1) Open discharge gate valves (2) Plug into GFCI outlet (3) Reset circuit breakers on outlet or breaker box (4) Press reset button (5) Pump will operate when pressure drops in tank |
| Pump will not move solution | <ol style="list-style-type: none"> (1) Tank empty (2) Main tank ball valve closed (3) Plugged strainer (4) Malfunctioning pump (5) Discharge gate valves not open (6) Air leak causing pump to lose suction | <ol style="list-style-type: none"> (1) Fill tank (2) Open ball valve (3) Clean strainer screen (4) See pump owners manual or contact Wylie Spray Center (5) Open discharge gate valves (6) Close valves and tighten fittings that can leak air |
| Freeze Protection System not working | <ol style="list-style-type: none"> (1) Heat cords or tank heater not plugged into ThermoCube (2) ThermoCube thermostat inoperable (3) One or more circuit breakers tripped (4) GFCI outlet reset button tripped (5) Heat cord malfunction | <ol style="list-style-type: none"> (1) Plug into ThermoCube (2) Replace ThermoCube (3) Reset circuit breakers at outlet or breaker box (4) Press reset button (5) Replace heat cord |
| Light tower or generator not working properly | <ol style="list-style-type: none"> (1) Generator system problem | <ol style="list-style-type: none"> (1) Refer to Allmand generator owner's manual |



Express Water Distribution Trailer Troubleshooting Guidelines

| Problem | Cause | Solution |
|--------------------------------------|--|--|
| Surge trailer brakes not operating | <ol style="list-style-type: none"> (1) Brake system fluid low (2) Brake shoes improperly adjusted (3) Brake shoes worn | <ol style="list-style-type: none"> (1) Add proper fluid (2) Adjust brake shoes (3) Replace brake shoes |
| Brakes will not release | <ol style="list-style-type: none"> (1) Emergency brake system is engaged | <ol style="list-style-type: none"> (1) Surge brakes -- Disengage emergency brake lever |
| One or more lights not working | <ol style="list-style-type: none"> (1) Light bulb burned out (2) Loose or broken wire | <ol style="list-style-type: none"> (1) Replace light bulb (2) Repair loose or broken wire |
| Lighting system is not working | <ol style="list-style-type: none"> (1) Electric trailer plug not properly plugged into vehicle (2) Blown fuse (3) Loose or broken wire | <ol style="list-style-type: none"> (1) Properly connect to tow vehicle (2) Replace fuse (3) Repair loose or broken wire |
| Pump Will Not Operate | <ol style="list-style-type: none"> (1) Distribution gate valves closed (2) Pump not plugged into GFCI outlet (3) GFCI outlet reset button tripped (4) Pump switch turned off (5) Tank is pressurized (6) Reset pad is tripped | <ol style="list-style-type: none"> (1) Open Distribution gate valves (2) Plug into GFCI outlet (3) Press reset button (4) Turn switch on (5) Pump will operate when pressure drops in tank (6) Press reset pad to restart pump |
| Pump will not move solution | <ol style="list-style-type: none"> (1) Tank empty (2) Main tank ball valve closed (3) Plugged strainer (4) Malfunctioning pump (5) Discharge valves not open (6) Air leak causing pump to lose suction | <ol style="list-style-type: none"> (1) Fill tank (2) Open ball valve (3) Clean strainer screen (4) See pump owners manual or contact Wylie Spray Center (5) Open discharge valve (6) Close valves and tighten fittings that can leak air |
| Freeze Protection System not working | <ol style="list-style-type: none"> (1) Heat cords or tank heater not plugged into ThermoCube (2) ThermoCube thermostat inoperable (3) One or more circuit breakers tripped (4) GFCI outlet reset button tripped (5) Heat cord malfunction | <ol style="list-style-type: none"> (1) Plug into ThermoCube (2) Replace ThermoCube (3) Reset circuit breakers at breaker box (4) GFCI outlet reset button tripped (5) Replace heat cord |

* Refer to the pump owner's manual for additional pump information.



Express Generator Trailer Troubleshooting Guidelines

| Problem | Cause | Solution |
|--|---|---|
| Surge trailer brakes not operating | <ul style="list-style-type: none"> (1) Brake system fluid low (2) Brake shoes improperly adjusted (3) Brake shoes worn | <ul style="list-style-type: none"> (1) Add proper fluid (2) Adjust brake shoes (3) Replace brake shoes |
| Brakes will not release | <ul style="list-style-type: none"> (1) Emergency brake system is engaged | <ul style="list-style-type: none"> (1) Surge brakes -- Disengage emergency brake lever |
| One or more lights not working | <ul style="list-style-type: none"> (1) Light bulb burned out (2) Loose or broken wire | <ul style="list-style-type: none"> (1) Replace light bulb (2) Repair loose or broken wire |
| Trailer lighting system is not working | <ul style="list-style-type: none"> (1) Electric trailer plug not properly plugged into vehicle (2) Blown fuse (3) Loose or broken wire | <ul style="list-style-type: none"> (1) Properly connect to tow vehicle (2) Replace fuse (3) Repair loose or broken wire |
| Pump Will Not Operate | <ul style="list-style-type: none"> (1) Discharge gate valves closed (2) Pump not plugged into GFCI outlet (3) GFCI outlet reset button tripped (4) One or more circuit breakers tripped (5) Tank is pressurized (6) Malfunctioning pump | <ul style="list-style-type: none"> (1) Open discharge gate valves (2) Plug into GFCI outlet (3) Press reset button (4) Reset circuit breakers on outlet or breaker box (5) Pump will operate when pressure drops in tank (6) See pump owners manual or contact Wylie Spray Center |
| Pump will not move solution | <ul style="list-style-type: none"> (1) Tank empty (2) Main tank ball valve closed (3) Plugged strainer (4) Malfunctioning pump (5) Discharge valves not open (6) Air leak causing pump to lose suction | <ul style="list-style-type: none"> (1) Fill tank (2) Open ball valve (3) Clean strainer screen (4) See pump owners manual or contact Wylie Spray Center (5) Open discharge valve (6) Close valves and tighten fittings that can leak air |
| Freeze Protection System not working | <ul style="list-style-type: none"> (1) Heat cords or tank heater not plugged into ThermoCube (2) ThermoCube thermostat inoperable (3) One or more circuit breakers tripped (4) GFCI outlet reset button tripped (5) Heat cord malfunction | <ul style="list-style-type: none"> (1) Plug into ThermoCube (2) Replace ThermoCube (3) Reset circuit breakers at outlet or breaker box (4) Press reset button (5) Replace heat cord |
| Generator not working properly | <ul style="list-style-type: none"> (1) Generator system problem | <ul style="list-style-type: none"> (1) Refer to Wacker Neuson generator owner's manual |



Tire Safety Information

1. TIRE SAFETY INFORMATION

This portion of the User's Manual contains tire safety information as required by 49 CFR 575.6.

Section 2.1 contains "Steps for Determining Correct Load Limit - Trailer".

Section 2.2 contains "Steps for Determining Correct Load Limit – Tow Vehicle".

Section 2.3 contains a Glossary of Tire Terminology, including "cold inflation pressure", "maximum inflation pressure", "recommended inflation pressure", and other non-technical terms.

Section 2.4 contains information from the NHTSA brochure entitled "Tire Safety – Everything Rides On It". This brochure, as well as the preceding subsections, describes the following items;

- Tire labeling, including a description and explanation of each marking on the tires, and information about the DOT Tire Identification Number (TIN).
- Recommended tire inflation pressure, including a description and explanation of:
 - A. Cold inflation pressure.
 - B. Vehicle Placard and location on the vehicle.
 - C. Adverse safety consequences of under inflation (including tire failure).
 - D. Measuring and adjusting air pressure for proper inflation.
- Tire Care, including maintenance and safety practices.
- Vehicle load limits, including a description and explanation of the following items:
 - A. Locating and understanding the load limit information, total load capacity, and cargo capacity.
 - B. Calculating total and cargo capacities with varying seating configurations including quantitative examples showing / illustrating how the vehicles cargo and luggage capacity decreases as combined number and size of occupants' increases. This item is also discussed in Section 3.
 - C. Determining compatibility of tire and vehicle load capabilities.
 - D. Adverse safety consequences of overloading on handling and stopping on tires.

1.1. STEPS FOR DETERMINING CORRECT LOAD LIMIT – TRAILER

Determining the load limits of a trailer includes more than understanding the load limits of the tires alone. On all trailers there is a Federal certification/VIN label that is located on the forward half of the left (road) side of the unit. This certification/VIN label will indicate the trailer's Gross Vehicle Weight Rating (GVWR). This is the most weight the fully loaded trailer can weigh. It will also provide the Gross Axle Weight Rating (GAWR). This is the most a particular axle can weigh. If there are multiple axles, the GAWR of each axle will be provided.

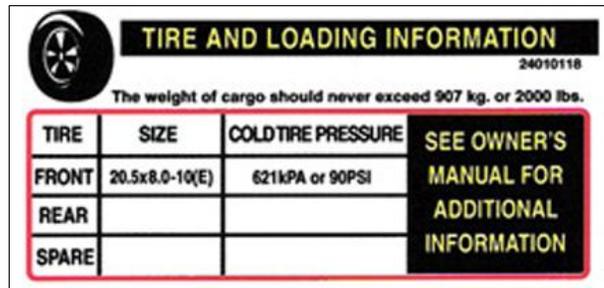
If your trailer has a GVWR of 10,000 pounds or less, there is a vehicle placard located in the same location as the certification label described above. This placard provides tire and loading information. In addition, this placard will show a statement regarding maximum cargo capacity. Cargo can be added to the trailer, up to the maximum weight specified on the placard. The combined weight of the cargo is provided as a single number. In any case, remember: the total weight of a fully loaded trailer can not exceed the stated GVWR.

For trailers with living quarters installed, the weight of water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the trailer before it is loaded with cargo, and is not considered part of the disposable cargo load. Water however, is a disposable cargo weight and is treated as such. If there is a fresh water storage tank of 100 gallons, this tank when filled would weigh about 800 pounds. If more cargo is being transported, water can be off-loaded to keep the total amount of cargo added to the vehicle within the limits of the GVWR so as not to overload the vehicle. Understanding this flexibility will allow you, the owner, to make choices that fit your travel needs.

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire. The best way to know the actual weight of the vehicle is to weigh it at a public scale. Talk to your dealer to discuss the weighing methods needed to capture the various weights related to the trailer. This would include the weight empty or unloaded, weights per axle, wheel, hitch or king-pin, and total weight.

Excessive loads and/or underinflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate an excessive amount of heat within the tire. Excessive heat may lead to tire failure. It is the air pressure that enables a tire to support the load, so proper inflation is critical. The proper air pressure may be found on the certification/VIN label and/or on the Tire Placard. This value should never exceed the maximum cold inflation pressure stamped on the tire.

1.1.1. TRAILERS 10,000 POUNDS GVWR OR LESS



Tire and Loading Information Placard – Figure 1-1

1. Locate the statement, “The weight of cargo should never exceed XXX kg or XXX lbs.,” on your vehicle’s placard. See figure 1-1.
2. This figure equals the available amount of cargo and luggage load capacity.
3. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity.

The trailer’s placard refers to the Tire Information Placard attached adjacent to or near the trailer’s VIN (Certification) label at the left front of the trailer.

1.1.2. TRAILERS OVER 10,000 POUNDS GVWR (NOTE: THESE TRAILERS ARE NOT REQUIRED TO HAVE A TIRE INFORMATION PLACARD ON THE VEHICLE)

1. Determine the empty weight of your trailer by weighing the trailer using a public scale or other means. This step does not have to be repeated.
2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer’s VIN (Certification) label.
3. Subtract the empty weight of your trailer from the GVWR stated on the VIN label. That weight is the maximum available cargo capacity of the trailer and may not be safely exceeded.

1.2. STEPS FOR DETERMINING CORRECT LOAD LIMIT – TOW VEHICLE

1. Locate the statement, “The combined weight of occupants and cargo should never exceed XXX lbs.,” on your vehicle’s placard.
2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds.
4. The resulting figure equals the available amount of cargo and luggage capacity. For example, if the “XXX” amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage capacity is 650 lbs. (1400-750 (5 x 150) = 650 lbs.).
5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage capacity calculated in Step # 4.
6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the tow vehicle’s manual to determine how this weight transfer reduces the available cargo and luggage capacity of your vehicle.

1.3. GLOSSARY OF TIRE TERMINOLOGY

Accessory weight

The combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

**Bead**

The part of the tire that is made of steel wires, wrapped or reinforced by ply cords and that is shaped to fit the rim.

Bead separation

This is the breakdown of the bond between components in the bead.

Bias ply tire

A pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

Carcass

The tire structure, except tread and sidewall rubber which, when inflated, bears the load.

Chunking

The breaking away of pieces of the tread or sidewall.

Cold inflation pressure

The pressure in the tire before you drive.

Cord

The strands forming the plies in the tire.

Cord separation

The parting of cords from adjacent rubber compounds.

Cracking

Any parting within the tread, sidewall, or inner liner of the tire extending to cord material.

CT

A pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on the underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire.

Curb weight

The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

Extra load tire

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Groove

The space between two adjacent tread ribs.

Gross Axle Weight Rating

The maximum weight that any axle can support, as published on the Certification / VIN label on the front left side of the trailer. Actual weight determined by weighing each axle on a public scale, with the trailer attached to the towing vehicle.

Gross Vehicle Weight Rating

The maximum weight of the fully loaded trailer, as published on the Certification / VIN label. Actual weight determined by weighing trailer on a public scale, without being attached to the towing vehicle.

Hitch Weight

The downward force exerted on the hitch ball by the trailer coupler.

Innerliner

The layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

Innerliner separation

The parting of the innerliner from cord material in the carcass.



Tire Safety Information

Intended outboard sidewall

The sidewall that contains a white-wall, bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same molding on the other sidewall of the tire or the outward facing sidewall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

Light truck (LT) tire

A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

Load rating

The maximum load that a tire is rated to carry for a given inflation pressure.

Maximum load rating

The load rating for a tire at the maximum permissible inflation pressure for that tire.

Maximum permissible inflation pressure

The maximum cold inflation pressure to which a tire may be inflated.

Maximum loaded vehicle weight

The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

Measuring rim

The rim on which a tire is fitted for physical dimension requirements.

Pin Weight

The downward force applied to the 5th wheel or gooseneck ball, by the trailer kingpin or gooseneck coupler.

Non-pneumatic rim

A mechanical device which, when a non-pneumatic tire assembly incorporates a wheel, supports the tire, and attaches, either integrally or separably, to the wheel center member and upon which the tire is attached.

Non-pneumatic spare tire assembly

A non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

Non-pneumatic tire

A mechanical device which transmits, either directly or through a wheel or wheel center member, the vertical load and tractive forces from the roadway to the vehicle, generates the tractive forces that provide the directional control of the vehicle and does not rely on the containment of any gas or fluid for providing those functions.

Non-pneumatic tire assembly

A non-pneumatic tire, alone or in combination with a wheel or wheel center member, which can be mounted on a vehicle.

Normal occupant weight

This means 68 kilograms (150 lbs.) times the number of occupants specified in the second column of Table I of 49 CFR 571.110.

Occupant distribution

The distribution of occupants in a vehicle as specified in the third column of Table I of 49 CFR 571.110.

Open splice

Any parting at any junction of tread, sidewall, or innerliner that extends to cord material.

Outer diameter

The overall diameter of an inflated new tire.

Overall width



The linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decorations, or protective bands or ribs.

Ply

A layer of rubber-coated parallel cords.

Ply separation

A parting of rubber compound between adjacent plies.

Pneumatic tire

A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load.

Production options weight

The combined weight of those installed regular production options weighing over 2.3 kilograms (5 lbs.) in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

Radial ply tire

A pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the centerline of the tread.

Recommended inflation pressure

This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification / VIN tag.

Reinforced tire

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Rim

A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

Rim diameter

This means the nominal diameter of the bead seat.

Rim size designation

This means the rim diameter and width.

Rim type designation

This means the industry of manufacturer's designation for a rim by style or code.

Rim width

This means the nominal distance between rim flanges.

Section width

The linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

Sidewall

That portion of a tire between the tread and bead.

Sidewall separation

The parting of the rubber compound from the cord material in the sidewall.

Special Trailer (ST) tire

The "ST" is an indication the tire is for trailer use only.

Test rim

The rim on which a tire is fitted for testing, and may be any rim listed as appropriate for use with that tire.

Tread



Tire Safety Information

That portion of a tire that comes into contact with the road.

Tread rib

A tread section running circumferentially around a tire.

Tread separation

Pulling away of the tread from the tire carcass.

Treadwear indicators (TWI)

The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

Vehicle capacity weight

The rated cargo and luggage load plus 68 kilograms (150 lbs.) times the vehicle's designated seating capacity.

Vehicle maximum load on the tire

The load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

Vehicle normal load on the tire

The load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I of CRF 49 571.110) and dividing by 2.

Weather side

The surface area of the rim not covered by the inflated tire.

Wheel center member

In the case of a non-pneumatic tire assembly incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic rim and provides the connection between the non-pneumatic rim and the vehicle; or, in the case of a non-pneumatic tire assembly not incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic tire and provides the connection between tire and the vehicle.

Wheel-holding fixture

The fixture used to hold the wheel and tire assembly securely during testing.

1.4. TIRE SAFETY - EVERYTHING RIDES ON IT

The National Traffic Safety Administration (NHTSA) has published a brochure (DOT HS 809 361) that discusses all aspects of Tire Safety, as required by CFR 575.6. This brochure is reproduced in part below. It can be obtained and downloaded from NHTSA, free of charge, from the following web site:

http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires_index.html

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling
- Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- Increase the life of your tires.

This booklet presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance
- Uniform Tire Quality Grading System
- Fundamental characteristics of tires



- Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

1.5. SAFETY FIRST—BASIC TIRE MAINTENANCE

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded vehicles are a major cause of tire failure. Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

1.5.1. FINDING YOUR VEHICLE'S RECOMMENDED TIRE PRESSURE AND LOAD LIMITS

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW—the maximum occupant and cargo weight a vehicle is designed to carry)
- Front and rear gross axle weight ratings (GAWR— the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the trailer near the left front.

1.5.2. UNDERSTANDING TIRE PRESSURE AND LOAD LIMITS

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure— measured in pounds per square inch (psi)—a tire requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kpa), which is the metric measure used internationally.)

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.) Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

1.5.3. CHECKING TIRE PRESSURE

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine underinflation by visual inspection.

For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.



Tire Safety Information

1.5.4. STEPS FOR MAINTAINING PROPER TIRE PRESSURE

- Step 1: Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.
- Step 2: Record the tire pressure of all tires.
- Step 3: If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.
- Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.
- Step 5: At a service station, add the missing pounds of air pressure to each tire that is underinflated.
- Step 6: Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure).

If you have been driving your vehicle and think that a tire is underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly underinflated tire. Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

1.5.5. TIRE SIZE

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

1.5.6. TIRE TREAD

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built-in treadwear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

1.5.7. TIRE BALANCE AND WHEEL ALIGNMENT

To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel-and-tire assembly. A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to the vehicle's frame. This adjustment maximizes the life of your tires. These adjustments require special equipment and should be performed by a qualified technician.

1.5.8. TIRE REPAIR

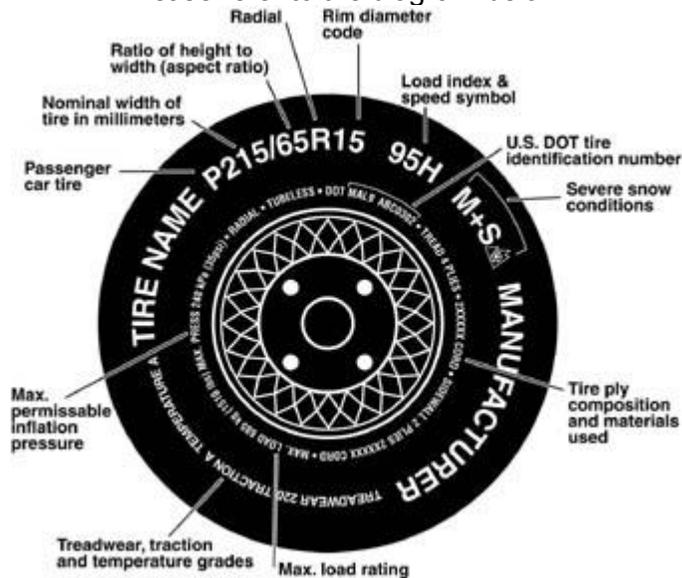
The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

1.5.9. TIRE FUNDAMENTALS

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

1.5.9.1. Information on Passenger Vehicle Tires

Please refer to the diagram below.



P

The "P" indicates the tire is for passenger vehicles.

Next number

This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next number

This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R

The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

Next number

This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next number

This two- or three-digit number is the tire's load index. It is a measurement of how much weight each tire can support. You may find this information in your owner's manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because it is not required by law.

M+S

The "M+S" or "M/S" indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Speed Rating

The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed below. Note: You may not find this information on all tires because it is not required by law.



Tire Safety Information

| Letter Rating | Speed Rating |
|---------------|--------------|
| Q | 99 mph |
| R | 106 mph |
| S | 112 mph |
| T | 118 mph |
| U | 124 mph |
| H | 130 mph |
| V | 149 mph |
| W | 168* mph |
| Y | 186* mph |

* For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

U.S. DOT Tire Identification Number

This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

1.5.9.2. UTQGS Information

Treadwear Number

This number indicates the tire's wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

Traction Letter

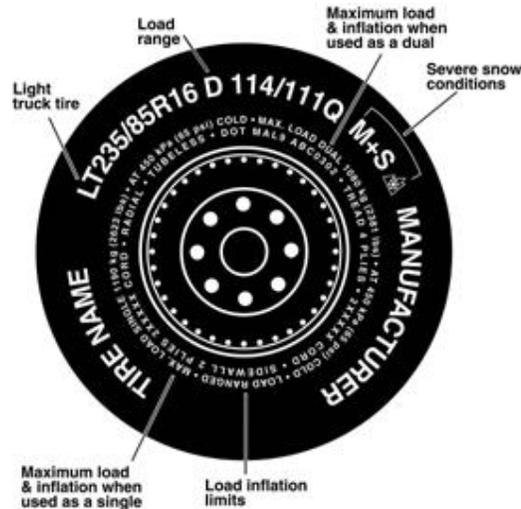
This letter indicates a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

Temperature Letter

This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

1.5.9.3. Additional Information on Light Truck Tires

Please refer to the following diagram.



Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

LT

The "LT" indicates the tire is for light trucks or trailers.

ST

An "ST" is an indication the tire is for trailer use only.

Max. Load Dual kg (lbs) at kPa (psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

Max. Load Single kg (lbs) at kPa (psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range

This information identifies the tire's load-carrying capabilities and its inflation limits.

1.6. TIRE SAFETY TIPS

Preventing Tire Damage

- Slow down if you have to go over a pothole or other object in the road.
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when parking.

Tire Safety Checklist

- Check tire pressure regularly (at least once a month), including the spare.
- Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- Remove bits of glass and foreign objects wedged in the tread.
- Make sure your tire valves have valve caps.
- Check tire pressure before going on a long trip.
- Do not overload your vehicle. Check the Tire Information and Loading Placard or User's Manual for the maximum recommended load for the vehicle.



Notes